

STATISTICS

Refrigeration Sales in Philadelphia Area for First 9 Months Are 17% Ahead of 1931 Period

PHILADELPHIA—Electric refrigeration sales in the Philadelphia area for the first nine months of 1932 were 17 per cent higher than for the corresponding period of 1931, the total unit sales for 1932 being 29,226 as compared with 25,003 for 1931, according to a survey and tabulation recently completed by the Electrical Association of Philadelphia.

Moreover, for the nine-months period, there was an increase of 6 per cent in dollar volume over last year, the survey reports. Sales in 1932 totaled \$6,380,488, as against \$6,035,201 last year.

Average unit price was \$218 this year, while it was \$241 last year. June, February, January, and May showed the only monthly gains, both in units sold and in dollar volume, according to the survey.

The report covers sales in Philadelphia, Bucks, Montgomery, Delaware, and Chester counties.

Distributors who contributed monthly sales statistics to the association's report are as follows:

J. J. Pocock, Inc., Frigidaire; Judson C. Burns, Inc., General Electric; Peirce-Phelps, Inc., Majestic; Elliott-

Lewis Electric Co., Copeland; Trilling & Montague, Norge; Raymond Rosen Co., Kelvinator; Elin Co., Westinghouse.

Sears, Roebuck Co., Coldspot; Philadelphia Distributor, Inc., Mayflower; Louis Buehn Co., Gibson; Klein Stove Co., Leonard; and Lewis Radio Co., Crosley.

These companies reported the number of units sold and the dollar volume each month. The association mailed to all member distributors a questionnaire, asking for this information, and enclosed a plain envelope to be returned to George R. Conover, managing director.

When the total number of questionnaires sent out had been returned, the information was tabulated and the report compiled.

Sales of the following makes of refrigerators, all of which are sold in the metropolitan Philadelphia area, are not included in the report: Bohn, Buckeye, Merchant & Evans, Mohawk, Puritan, Stewart-Warner, Welsbach, Williams Ice-O-Matic, Wurlitzer, and Zerozone.

Following is a tabulation of the comparative figures, month by month:

Month	1932 Total Units Sold	1931 Total Units Sold	1932 Per Cent Increase or Decrease	1932 Retail Value Dollars	1931 Retail Value Dollars	1932 Per Cent Increase or Decrease	Average Unit Price 1932	1931
January	1,545	917	+68%	\$ 340,085	\$ 230,740	+47%	\$220	\$252
February	1,711	992	+72%	373,115	253,783	+47%	218	256
March	2,365	2,545	-7%	520,221	645,179	-19%	220	254
April	4,473	5,178	-14%	945,777	1,081,182	-13%	211	209
May	5,969	3,987	+50%	1,292,544	995,269	+29%	217	249
June	7,104	3,608	+97%	1,576,049	884,114	+77%	222	245
July	2,473	3,709	-33%	545,483	929,245	-41%	220	250
August	1,885	2,178	-13%	424,798	548,446	-23%	224	252
September	1,701	1,889	-10%	362,418	467,243	-22%	213	247
Total	29,226	25,003	+17%	\$6,380,488	\$6,035,201	+6%	\$218	\$241

A separate table showing the sales of the Philadelphia Electric Co. was also compiled by the association:

Month	1932 Total Units Sold	1931 Total Units Sold	1932 Per Cent Increase or Decrease	1932 Retail Value Dollars	1931 Retail Value Dollars	1932 Per Cent Increase or Decrease	Average Unit Price 1932	1931
January	48	101	-52%	\$ 12,124	\$ 24,142	-50%	\$253	\$239
February	67	190	-65%	20,026	48,287	-58%	299	254
March	116	186	-38%	28,703	50,641	-43%	247	272
April	354	391	-9%	84,614	111,705	-24%	239	286
May	362	372	-3%	87,672	102,828	-15%	242	276
June	384	435	-12%	94,939	125,774	-25%	247	289
July	177	364	-51%	45,509	106,933	-58%	257	294
August	104	218	-52%	26,135	63,157	-59%	251	290
September	111	167	-44%	24,856	52,740	-53%	224	316
Total	1,723	2,424	-29%	\$424,578	\$886,207	-53%	\$246	\$283

INDUSTRIAL ACTIVITY IN NOVEMBER FALLS TO 65%

WASHINGTON, D. C.—Industrial activity declined by more than the seasonal amount in November, according to the survey of business conditions conducted by the Federal Reserve Board.

Factory employment, pay rolls, commodity prices, building contracts, and department store sales, dropped along with industrial production during the month.

Volume of industrial production, as measured by the board's seasonally adjusted index, fell from 66 per cent of the 1923-25 average in October to 65 per cent in November.

Wholesale commodity prices receded during the week ended Dec. 17 for the fourth successive week, establishing a new low since 1929.

The index number for the week ending Dec. 17 was 63.0 as compared with 63.1 for the week ending Dec. 10. These index numbers are derived from price quotations of 784 commodities, weighed according to the importance of each commodity, and based on average prices for the year 1929 as 100.

Four products—building materials, chemicals and drugs, housefurnishing goods, and farm products—remained at exactly the same level as in the previous week, and the index numbers of foods and textile products prices showed a slight increase.

REHABILITATION PROJECTS VALUED AT \$105,266,429

NEW YORK CITY—Rehabilitation projects in numerous industrial plants and retail establishments involving a cost of \$105,266,429 are now under way, according to A. W. Robertson, chairman of the national committee on industrial rehabilitation and chairman of the board of Westinghouse Electric & Mfg. Co.

Exports & Imports Lower for First 11 Months

WASHINGTON, D. C.—Exports of merchandise from the United States during the first 11 months of this year decreased by \$758,841,000, and imports decreased by \$711,663,000, as compared with the same period in 1931, according to figures compiled by the Department of Commerce.

Exports during the first 11 months of 1932 were valued at \$1,481,379,000, and imports at \$1,225,199,000.

November exports were the lowest for that month in 30 years, and imports were the lowest for 24 years, according to the statistical research division of the department.

For the month of November, 1932, the value of exports was \$139,000,000, a decrease of \$54,540,000 from the value in November, 1931. Imports decreased \$45,480,000, totaling for the month this year, \$104,000,000.

Exports of gold during the first 11 months increased \$375,364,000 over those for the same period in 1931, the figures for 1931 being \$434,143,000 as compared with \$809,507,000 for this year. Imports for the first 11 months this year decreased \$260,167,000, and totaled \$262,610,000.

Exports of silver decreased \$11,728,000 and imports decreased \$7,001,000 for the 11-month period.

In November, 1932, exports of gold amounted to only \$12,000, as compared with \$4,994,000 in the same month in 1931. Imports of gold were \$21,756,000.

WESTINGHOUSE MANAGER IN MONTREAL DIES

MONTREAL, Can.—Charles F. Medbury, for the past 23 years manager of the Montreal office of the Canadian Westinghouse Co., died recently.

CABINETS BY

Seeger

SAINT PAUL

QUOTING an unbiased authority* on the refrigeration industry—"Seeger has maintained its position as the outstanding independent supplier and furnishes most of the larger sizes required by the trade."

We are proud of this distinction and will do all in our power to maintain this position.

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CROSLEY DESIGNS DOOR WITH FOOD SHELVES

KELVINATOR AND LEONARD SHOW GAINS IN SALES

Kelvinator Shipments 40% Above First Quarter in 1932

DETROIT—Kelvinator Corp.'s unit shipments for the first quarter of the company's fiscal year, which started Oct. 1, 1932, were 40 per cent over those of the first quarter a year ago, H. W. Burritt, vice president in charge of sales, announced.

Shipments to distributors throughout the United States were 45 per cent over those of the first quarter of the previous year. Mr. Burritt said.

Export shipments were 63 per cent in excess of those made in the first quarter last year.

Unfilled orders on hand at the start of the second quarter were 112 per cent in excess of those on hand at the same time last year.

Leonard Up 77%

DETROIT—Unit shipments by the Leonard Refrigerator Co. for the first quarter of the fiscal year were 77 per cent over those of the first quarter a year ago.

Unfilled orders on hand at the start of the second quarter, Jan. 1, 1933, were 100 per cent in excess of those at the beginning of the second quarter of 1932.

NORGE DISTRIBUTORS TO VIEW NEW LINE

DETROIT—Approximately 150 members of the Norge organization, including distributors, field representatives, and officials of the Norge Corp. and its parent concern, Borg-Warner Corp., will meet at Muskegon, Mich., next Monday, Tuesday, and Wednesday in the annual distributors' convention.

The convention will mark the initial showing of the Norge 1933 line of electric refrigerators, production of which will be started next week at the Muskegon Heights plant.

The stage in the ballroom at the Occidental hotel, which will be the headquarters for the convention, has been extended for the exhibition of the new line and for various entertainment features.

Plans for a greatly increased merchandising program will be explained and described in detail by John H. Knapp, vice president and director of sales.

Major Howard E. Blood, president of Norge Corp. and a vice president of Borg-Warner Corp., and George Borg, chairman of the board of Borg-Warner, will make the principal addresses to the distributors.

The distributors will be taken on a trip through the factory, and they will see the new department set up in the former storage building of the Alaska Refrigerator Co.

The meeting will close with the convention banquet scheduled for Wednesday night in the Occidental hotel.

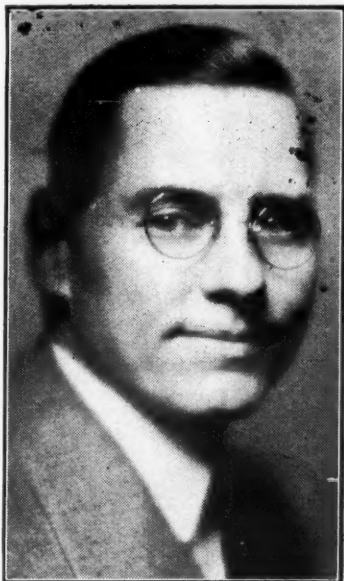
Leavenworth Company To Sell Mayflowers

DAYTON—The Great Western Stove Co., Leavenworth, Kan., has been appointed distributor of Mayflower electric refrigerators, manufactured by the Trupar Mfg. Co., of this city, according to L. G. Lindsay, vice president in charge of sales.

Buhl Sons Holds 'Open House' for Dealers

DETROIT, Jan. 10.—Starting today, Buhl Sons Co., eastern Michigan Leonard distributor, will hold a 10-day "open house" at which Leonard dealers and prospective dealers in Buhl's territory will see the 1933 Leonard line and discuss merchandising plans.

Adds to Duties



P. B. ZIMMERMAN
Appointed manager of new G. E. appliance sales department.

KELVINATOR READY TO SHIP OIL BURNERS

By Elston D. Herron

DETROIT—Kelvinator Corp. is ready to place on the market its new Kelvinator oil burner, and will make first shipments of the unit before the end of this month, according to J. A. Harlan, who will supervise distribution of the product.

The burner, which is of the horizontal rotary type, has the basic design of the Rightway oil burner, manufacturing rights for which were purchased by Kelvinator last year from Detroit's Maise Corp.

Since the purchase, the burner has been developed and improved by Kelvinator engineers to such an extent that the company has placed its own trade name on the unit, replacing the name, "Rightway."

Preparations are under way for a campaign to promote sales of the burner during the coming selling season, according to Mr. Harlan.

Principal features of the Kelvinator oil burner, as outlined by Mr. Harlan, are its type of installation and its principle of continuous operation.

The oil burning apparatus is mounted on the arm of a stationary pedestal in such a way that the unit may be swung to the furnace door and clamped in the proper position for the burning process.

Burner may be swung away from the furnace door when the user chooses to burn refuse in the furnace, or is compelled to use coal or wood for heating purposes until power diffi-

(Concluded on Page 6, Column 3)

G. E. ESTABLISHES DEPARTMENT TO SELL APPLIANCES

Zimmerman to Direct Range and Washer Distribution

CLEVELAND—A specialty appliance sales department for the distribution and sale of General Electric ranges, G. E. dishwashers, and G. E. kitchens, has been established by the General Electric Co., under the general direction of P. B. Zimmerman, who will also continue as manager of the company's electric refrigeration department, according to T. K. Quinn, vice president.

The Edison General Electric Appliance Co., Inc., of Chicago, which has made and merchandised the G. E. Hotpoint range, will concentrate its sales efforts on a new line of electric ranges to be marketed nationally under the "Hotpoint" trade name, he states.

Factory sales representatives of the Chicago company will contact directly public utilities and range dealers, while the General Electric range will be sold exclusively through General Electric refrigerator distributors and dealers.

"The General Electric Co. is looking to the refrigerator distributor more and more for the exploitation of its new major specialties," states Mr. Quinn.

"Our present refrigerator distributors will continue to represent us in the sale of refrigerators, ranges, dish-

Lily Pons to Sing On G. E. Program

CLEVELAND—Lily Pons, Metropolitan Opera soprano, who was scheduled to sing on the General Electric radio concert Jan. 1, and was ill at the time, will appear on the General Electric program to be broadcast over the NBC red network Sunday, Jan. 15, at 9 p. m., eastern standard time.

washers, and the G. E. kitchen, in prescribed territories, as the major sales outlets of the specialty appliance sales department.

"The Edison General Electric Appliance Co., Inc., will manufacture and sell an entirely separate line of lower-priced 'Hotpoint' ranges, principally to and through central stations, using the warehousing and accounting facilities of the G. E. Supply Corp."

"The General Electric Kitchen Institute, for the time being, will con-

(Concluded on Page 4, Column 5)

Delivered Prices Quoted On 3 New Models

Recessed Door Panel Used as Storage Space for Eggs, Butter, Fruit, and Small Articles

By George F. Taubeneck

CINCINNATI—Two innovations—a door within which food may be stored, and the quoting of delivered (freight and everything else paid) prices—are the levers with which the Crosley Radio Corp. hopes to pry open a larger share of the electric refrigeration market in 1933. Three models will comprise the entire line: 3½ cu. ft., priced at \$95; 4½ cu. ft., \$105; and 6 cu. ft., \$130—all

prices delivered, installed, freight, tax, and everything paid. (West of the Rockies, \$5 will be added to the price of each model.)

Representatives of some 60 Crosley distributorships, in convention assembled at the Crosley factory here Friday, rose to their feet and cheered when the Shelvador—new Crosley device which allows small articles of food to be stored inside the door of the refrigerator cabinet—was introduced.

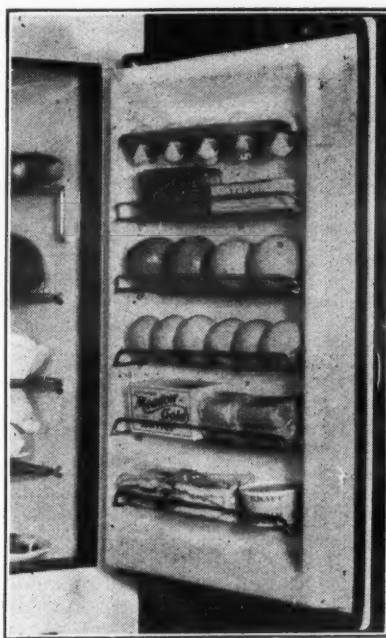
These distributors had sat dispassionately through a morning devoted to the unveiling of the 1933 Crosley radio line; but when Powell Crosley, Jr., smilingly opened the door of a 3½-cu. ft. job, and they saw the Shelvador arrangement, they jumped upon their chairs and shouted their approval.

Narrow shelves are fitted within the recess inside the door of the new Crosley box. Top shelf is an egg rack, which holds from 5 to 13 eggs, each in a specially designed holder. Remaining shelves (4 in the 3½-cu. ft. box, 5 in the 4½-cu. ft. box) are designed to accommodate bacon, butter, fruit, cheese, jelly, and other articles which would take up full shelf space within the cabinet proper. A guard on the Shelvador racks prevents food from being jarred out when the door is slammed.

This inner recess gives the outside of the door a two-stage appearance, and the whole cabinet a terraced effect. Functionalism of this design has been

(Concluded on Page 4, Column 3)

Shelvador



Crosley uses the interior of its door for food storage.

ALBANY SALESMAN WINS XMAS PRIZE

DETROIT—Thomas J. Dorato, Community Appliance Shop, Albany, N. Y., was winner of the first prize of \$100 in the Christmas retail sales contest conducted by the Leonard Refrigerator Co. from Nov. 1 to Dec. 15.

Second prize of \$75 was awarded to P. M. McClanahan, Modern Appliance Shop, Charleston, W. Va.; Maurice S. Thornton, The May Co., Baltimore, Md., won third prize of \$50.

(Concluded on Page 4, Column 5)

REX COLE TOPPERS TO RECEIVE CASH AWARDS

NEW YORK CITY—Rex Cole, General Electric distributor here, has canceled the trip to Lake Placid for members of the Toppers Club of his organization, and in its stead, each of the men who would have taken the trip will receive \$120.

The outing to Lake Placid is the reward offered this year to star salesmen by the General Electric Co.

Twenty-two retail, nine apartment house, eight wholesale, and five commercial salesmen will receive the cash prizes.

Prof. Macintire Talks On Air Conditioning

CHICAGO—H. J. Macintire, professor of refrigeration at the University of Illinois, Urbana, Ill., outlined the basic principles of refrigeration with particular reference to its application in air conditioning, Monday night, Jan. 9, before a joint meeting of the Chicago section of the A.S.R.E. and the Illinois chapter of the A.S.H.&V.E.

Prof. Macintire traced the cycle of operation for refrigerating systems, and showed methods of calculating the required compressor size and power needs.

New refrigerants, and those of long

(Concluded on Page 11, Column 3)

Young, Peck Visit Gibson Factory

GREENVILLE, Mich.—Herbert E. Young, eastern division sales manager, and P. W. Peck, southern district manager of Gibson Electric Refrigerator Corp., visited the factory here recently accompanied by William Parrish and Joe Andrews, representing the Keith, Simmons Co., of Nashville, Tenn., Gibson distributor for that district.

NOW - - ENGINEERING NEWS EVERY WEEK

Beginning with this issue, Electric Refrigeration News will report news of engineering developments, service information, patents, etc., every week.

The old Engineering Section, which was issued every two weeks, printed on green paper, and bound separately, will be discontinued in favor of this new arrangement—which makes for greater speed in reporting news of engineering developments.

In addition to quickening the service of bringing engineering and technical information to readers, this change has the added advantage of making Electric Refrigeration News easier to handle and to keep. Also, because it is now printed on white paper instead of green, engineering news will be more comfortably read.

Other innovations were made in the first issue of 1933 (Jan. 4) with a view toward making Electric Refrigeration News easier to

read. These innovations may be listed as follows:

1. **NARROWER COLUMNS.** Without reducing the page size, individual columns are now slightly narrower. Thus readability is enhanced by the addition of white space between columns, and by shorter lines, which can be more readily grasped by the eye at a glance. Lines are now set 13 picas wide (a pica is a printer's term for one-sixth of an inch) instead of 13½ picas, as in preceding issues.

2. **GROUPING** of related news under label headings. News stories and informative articles which are distinctly akin now appear together, on the same page, and are readily identifiable by the "billboard" headings (heavy Gothic logotypes).

Examples of this practice in this issue are: "Companion Merchandise," "Engineering," "Patents," "Statistics."

These same label headings will be used in subsequent issues, so

that readers who are interested in particular subjects may turn at once to the news which most concerns them.

Among the other label headings which may be expected in future issues are: "Air Conditioning," "Department Stores," "Home Service," "Books," "Advertising and Sales Promotion," and "Electric Refrigeration Bureau News."

3. Use of **GOTHIC** headline type. Gothic type is perhaps the clearest and most readable of all headline types available today. It is also the most easily compressed.

For these reasons, and because it is essentially a newspaper typeface (thus in keeping with the spirit and style of Electric Refrigeration News), Gothic type is now being used in the label section headings mentioned above, and in the banner head, "Electric Refrigeration News," on page 1. Further uses for this type-face will be found in subsequent issues.

BY GEORGE F. TAUBENECK ---

What Happened In 1932

The answer to that headline ("what happened in 1932") is, we suppose: "Plenty!"

To a great many men in the industry it was a sour year—even though they did a helluva lot better business than the vast majority of the nation's enterprisers during 1932. To others in the industry 1932 was a red-letter banner year. To Gibson, for instance; and to Leonard.

At any rate, it's all over now; and we're going to have our annual fun of recapitulating what we consider the important events of the year. Didn't have a chance to do it in the last issue—were too busy making ready the new dress for ELECTRIC REFRIGERATION NEWS. (And by the way, how do you like it? See detailed explanation on page 1 of this issue.)

In the Jan. 18 issue of the NEWS we plan to continue this running story of the year's happenings in refrigerationdom.

At that time you may read something about commercial refrigeration, air conditioning, public utilities, patents, department stores, advertising and sales promotion, companion merchandise, and other subjects we don't have space to touch on this issue.

New Companies

One of the most interesting factors in the electric refrigeration situation during 1932 was the inroads made by manufacturers who either entered the industry at the beginning of the year, or who were relatively inactive before that time—and the price turmoil which their entrance precipitated.

January of 1932 brought seven companies into the field. Jackson's Sparks-Wilmington Co. brought out its three-model Sparton line (manufactured at first by Gibson). General Motors Corp. announced the Faraday gas-operated absorption unit, and Summerheat Corp. bowed into the industry at Dowagiac, Mich.

Crosley Radio Corp., Cincinnati, introduced the first nationally advertised \$99.50 electric refrigerator when it announced its entrance into the field. F. A. D. Andrea, Inc., New York City radio manufacturer, started production of electric refrigerators, as did the Brunner Mfg. Co. of Utica, N. Y., and the Maine Mfg. Co. of Nashua, N. H.

Among the most potent of the newcomers was Domestic Industries, Inc., of Mansfield, Ohio. This concern began selling its Buckeye refrigerators directly to department stores and other large retail outlets in the closing months of 1931, and by January was one of the industry's largest producers. Its units retailed for less than \$100.

Also in January came the announcement that Briggs Mfg. Co., in Detroit, large manufacturer of automobile bodies, had placed on the market a line of refrigerator cabinets. Westinghouse placed the first contract with Briggs; Grunow followed late in the autumn.

In February the Metal Saw & Machine Co., Inc., Springfield, Mass., began preparations for manufacture of household units, as did Buffalo's Tricold Refrigerator Corp.

The following month brought three more companies into the field. They were the Grinnell Washing Machine Corp., Grinnell, Iowa; Stewart-Warner Corp., and Clago Mfg. Co., both of Chicago.

Bauer Bros. Co. of Springfield, Ohio, introduced a line of refrigerators in May, and late in the same month, Graybar Co. announced the Graybar Ilg-Kold line. In June, the United States Radio & Television Corp. of Marion, Ind., placed its U. S. Hermetic refrigerator on the market. Warner Steel Products Co., Ottawa, Kan., was another June entrant into the field.

Last companies to start electric refrigerator manufacture in 1932 were the Stevens Walden Co. of Worcester, Mass., and the newly organized Grunow Corp. in Chicago.

As is evident, most of these companies entered the field early in the year, when business was booming and the bright prospects of an ice shortage loomed up in the summer months.

New organizations wrested considerable business from older Nema manufacturers. Some became so important that they were made Nema members.

During 1932, Nema acquired Grigsby-Grunow, Gibson, and Crosley. Tennessee Furniture Corp. dropped out.

Prices Drop

Another effect of the crowded nature of the industry in 1932 was the lowering of prices. Industry newcomers were the first to make sizable price reductions.

Clago Mfg. Corp. announced a hermetically sealed line in a \$99.50-\$139.50

price range early in March. Grinnell's line started at \$99.50, and when Lectrik-Ice, in March, introduced a line of refrigerators, they were priced "to meet low-price competition." A price reduction brought the smallest Sparton unit down to \$133 in April.

When a new 4.4-cu. ft. model was introduced by Domestic Industries in May, it was retailed at \$89.50 f.o.b. Also in May, Clago set a price of \$79.50 on its new 3.2-cu. ft. model, and \$189.50 on its largest unit. Freeze King, too, announced a \$99.50 model (with a three-year guarantee) in May.

Other companies reducing prices in May were U. S. Radio & Television, Detroit's Noma Refrigerator Co., and Warner Steel Products Co. In June, Crosley Radio Corp. announced a 3.5-cu. ft. unit selling for \$89.50, and the following month came a 5-cu. ft. oil-burning unit sold by Montgomery Ward for \$107.50, plus freight.

Freeze King set a price of \$79.50 on its 3.6-cu. ft. model in July, and in August, Domestic Industries announced the 4.4 cu. ft. (gross capacity) Richland model selling for \$89.50, and shortly after this announcement, the Jacobson Refrigerator Co. of Detroit placed the same price on its 4.5-cu. ft. unit.

When older manufacturers saw their new competitors getting a substantial amount of business, they reduced their own prices to appeal to customers in the lower income brackets, hoping to make up for the lowered profits per sale in increased volume.

Frigidaire Starts the Ball Rolling

As early as March, Frigidaire Corp. reduced its prices, making the cost of its cheapest unit \$130, f.o.b. Kelvinator Corp. announced reductions of as much as \$52.50 on some Leonard models and \$100 on some Kelvinators. G. E. prices were cut from 5 to 23 per cent in March.

In April, Westinghouse announced a \$149.50-and-up price range, and in May, prices on two G. E. models were further reduced, and all Norge prices were cut.

It was Frigidaire which, in August, took the lead in definitely meeting the price of small manufacturers to appeal to the lower income groups, when it announced a price of \$112 (installed, plus freight) on its 4-cu. ft. Moraine model. Other established manufacturers followed suit soon after.

In October, Kelvinator and Leonard set the price of their smallest models at \$112, to be followed the next month by Trupar Mfg. Co. with a similar price on its 4.5-cu. ft. unit. Westinghouse lowered the price of its small model to \$119 (in zone 1). By the end of the year Gibson had established a base price of \$112 for its new line.

Many companies, unwilling to make drastic price slashes in their standard lines, introduced "companion" or "leader" lines to meet low-price competition.

Williams Oil-O-Matic Heating Corp., Grigsby-Grunow Co., Servel, Inc., and General Electric—all manufacturers of hermetic units—announced low-priced lines with conventional type units to invade the low-income market.

Rough on Dealers

The year just past was a tough one for dealers. Competition by department stores and mail order houses, with their increased activity in refrigeration sales and their offers of units at less-than-\$100 prices, helped put the skids under hundreds of dealers. So did time payment financing difficulties. And decreased volume plus smaller discounts plus lower unit prices all yielded minus signs in dealers' ledgers.

As department stores took on no-name refrigerators of direct-selling manufacturers and cut prices to new low levels, dealers began to demand of their manufacturers: "Give us a leader. We want a \$99.50 box which will pull prospects into the store."

Dealers insisted that "leader models" need not be sold in great quantities—that prospects could be lured into the store by a price, then sold a better and more expensive unit.

When several manufacturers at first refused to put out "leaders" at less-than-hundred-dollar prices, many dealers took on second lower-priced lines of new manufacturers.

Chiseling

Then came two developments which contracted the dealer ranks that had grown so rapidly during the early months of 1932. One of these was credit difficulties, the other, "chiseling."

In their efforts to "chisel" effectively (privately cutting advertised retail prices to take sales from competitors and other dealers of the same product), many dealers put themselves out of business.

They eliminated salesmen and their commissions, stopped advertising,

sliced their own discounts to the bone. The practice of "chiseling" was furthered by the public's tendency to "shop around for the best deal."

Prospects obtained a price from one dealer, got a still lower quotation from another dealer, and so made the rounds until they got a refrigerator of established make at a price much below list.

And the dealer who finally got the sale was almost invariably taking it away from another dealer who had laid the groundwork for the sale by newspaper advertising, direct mail promotion, and personal contact.

Hundreds of new dealers were set up in 1932 by the newer manufacturers, and many of these new dealers contented themselves by putting models in their own kitchens and in those of relatives or close friends at substantial discounts—pocketing only a few dollars on each transaction. This further depressed the market for older, established dealerships.

The result generally was a demoralized dealer situation in localities in which "chiseling" was prevalent—and the demise of many dealer organizations.

Even greater fatality among dealerships resulted from the unusual difficulty encountered by dealers in financing time payments. Finance companies apparently became quite "choosy" in their acceptance of dealer paper.

They refused—on the ground that their overhead on such small accounts was too large to make them profitable—to do business with a dealer whose time payment paper did not exceed \$5,000 in one year. In some cases the ante was even higher.

Local banks, like the finance companies, gave little aid to dealers. Because of this difficulty in financing their sales, many dealers, especially the smaller ones, dropped out of the picture.

Distributors concentrated their labors on the more substantial dealers doing a comparatively large volume of business, and whose business was more acceptable to finance companies. Distributors also made a bigger play for department stores, which could do their own financing.

Some distributors themselves financed substantial dealers, and help in some measure came from factories and public utilities.

Another source of difficulty for dealers arose when some department stores began to sell the "no-name" refrigerators of established manufacturers.

When department stores began an insistent demand for longer discounts on electric refrigerators, some leading manufacturers began selling them their cheapest models—slightly altered in appearance, and without a nameplate—directly, instead of through distributors.

Often a separate company was formed by manufacturers to handle this direct-to-department-store business.

The attitude of these manufacturers' distributors and dealers was frequently antagonistic, because not only did they fail to get a "cut" in many of the sales to department stores, but were regularly undersold by the department stores on refrigerators practically identical with those sold through regular dealer outlets.

Because so many dealers acquired in 1930 and 1931 were general merchants, rather than electric refrigeration specialists, the dealer body was harder hit by general business conditions than heretofore. These dealers, hard hit by slack sales of other merchandise, had little to spend promoting refrigeration sales. Fatalities in this class of dealerships were high.

Technical Advances

As compared with 1931, the past year brought few technical innovations in refrigerator manufacture, but some definite steps ahead were made in cabinet styling and finishing, use and manufacture of insulation, and motor design.

A resume of the year's principal engineering developments by various companies follows:

In February, Apex cabinets were redesigned, and a "pendant" placed on the front of each. A new paper insulation, "Corrigant," was adopted by Copeland. Steel replaced wood as a structural member in manufacture of cabinets at the Briggs plant in Detroit.

Kelvinator, in April, designed a new line of water coolers using new condensing units, low sides, and modernistic cabinets. Westinghouse began use of all-steel cabinets and frames in April.

In May, Century Electric Co. of St. Louis introduced a line of capacitor motors for use in refrigerators, and in June, the Wagner Electric Corp., St. Louis, announced some new condenser-start, condenser-run, split-phase motors for refrigeration duty.

Baldor Electric Co. two weeks later presented a line of high torque capacitor motors. In August, E. I. du Pont de Nemours & Co. brought out a new synthetic resin finish, and Servel Sales, Inc., started use of a "pearl-escence" finish on all models. Use of Statflex aluminum foil insulation was instituted by Frigidaire.

In October, Howell Electric Motors Co., announced incorporation of a capacitor unit inside a fractional horsepower motor frame in its "built-in" capacitor motors for refrigerators.

Kelvinator models were equipped with high side float refrigerant control, and a new automatic defrosting control, and the new Grunow units, announced in December, comprised streamlined cabinets and a low-pressure refrigerating system employing a rotary four-vane compressor and carene as the refrigerant.

Also in December, the Wood Conversion Co. announced a new process for producing sealed slabs of insulation in refrigeration factories, permitting its Balsam Wool insulation to be shipped more economically.

Sales Tax

One of the industry's chief annoyances during 1932 was the 5 per cent tax on mechanical refrigerators which went into effect June 21. The tax was on the manufacturers' selling price. Following its enactment sales boomed momentarily (while utilities and distributors stocked up at tax-free prices), then fell precipitately.

A part of President Hoover's recommended budget-balancing tax bill, the tax was not passed without protest from the refrigeration industry.

On April 19, Louis Ruthenburg, chairman of the Nema refrigeration division, protested passage of the measure before the Senate finance committee in its hearings on the bill. A number of industry executives attended the hearing. The provision was stricken from the bill, by the committee, but was restored on the floor of the Senate.

During 1932, a number of organizations concerned with the manufacture of electric refrigeration established subsidiary plants outside of the United States in order to satisfy "buy-at-home" movements and legislation in other countries.

In February, the Trupar Mfg. Co. established the Mayflower Corp. of Canada, Ltd., at Hamilton, Ont., to manufacture household units. St. Louis' Wagner Electric Corp. opened a plant at Toronto in March, under the name of Wagner Electric Mfg. Co., Ltd.

Frigidaire Corp. announced in April its establishment of a factory at Toronto. In May, Apex Electrical Mfg. Co. completed arrangements to have Apex appliances made and marketed by the Robert Mitchel Co., Ltd., of Montreal.

By agreement with the Mueller Brass Co. of Port Huron, Mich., the Canada Wire and Cable Co., Ltd., of Leaside, Ont., began manufacture of streamline refrigeration fittings in November.

And in the same month, the Bristol Co. of Waterbury, Conn., announced establishment of a factory in London under the name of Bristol's Instrument Co., Ltd.

Red and Black

Although many refrigeration manufacturers failed to show a profit for 1932, their unit sales during the year surpassed those of 1931. Losses were, for the most part, due to drastic price reductions.

Perhaps the best record of the year was made by Gibson, which reported sales for the fiscal year ending July 31, 1932, 800 per cent greater than those of the preceding fiscal year. Leonard's fiscal year (ending September, 1932) showed a sales volume which was 232 per cent of the mark established in the previous fiscal year.

Some indication of the amount of business done by established manufacturers is shown in a swift and random resume of monthly sales reports for various companies published in ELECTRIC REFRIGERATION NEWS during 1932.

Kelvinator shipments in January were 23 per cent ahead of those for the same month of the preceding year. Copeland sales increased 139 per cent in January and February in eastern New England territory. In March, it was reported that Nema sales in January were 55.2 per cent greater than in January, 1931.

Number of refrigerators sold by the end of February was 77,890. In April, Philadelphia's Elin Co. placed a \$2,000,000 refrigerator order with Westinghouse. On April 29, Norge Corp. shipped five trainloads of refrigerators from its Muskegon plant.

Kelvinator and Leonard shipped 25,400 units in April to pass by 10 per cent the shipments for the same month in '31. Electric Refrigeration Bureau reported in May that 160,037 units were sold during the year's first three months.

In May, the Majestic factory was operating 24 hours per day, with a 900-unit daily output. Majestic reported that its distributors' April sales averaged 150 per cent above quota.

Universal Cooler Corp. reported (in

May) that its dollar volume of sales for the first three-quarters of its fiscal year was 150 per cent greater than that of the same period in the preceding fiscal period.

Leonard shipments in April were 124 per cent greater than those for the same month of 1931, and Kelvinator-Leonard shipments in May surpassed May, 1931, shipments by 15 per cent.

Also in April household electric refrigerator sales exceeded automobile sales for the first time in history.

Frigidaire's May sales in the New York area were 33 per cent above those for May of 1931. Kelvinator's May shipments were 17 per cent greater than for '31's corresponding period.

Six Detroit refrigerator distributors reported "buying rushes" on June 20, the day before the government tax on refrigerators went into effect. On the same day, 600 Buckeye units were shipped by Domestic Industries, Inc.

Leonard announced in June that its April-and-May shipments exceeded those for the entire 1931 fiscal year, and in the same month, Norge sales showed an increase for the eighteenth consecutive month. Sales of 438,181 units in the first five months of the year were reported by the Electric Refrigeration Bureau in July.

Zerozone sales for the first six months of '32 increased 50 per cent over those for the same period of 1931. A July report of Grigsby-Grunow Co. showed its ratio of current assets to current liabilities to be 3.5 to 1.

July Stewart-Warner shipments doubled those of June. Kelvinator Corp. reported net earnings for its first quarter (ending June 30) of \$730,002, with first-quarter shipments 20 per cent greater than those for the same period in 1931.

At the end of July, Nema's refrigerator division reported an increase in unit sales and a decrease in dollar volume for the first six months as compared with the same period in 1931. Total Nema sales for the first six months totaled 519,426.

An August Electric Refrigeration Bureau report revealed that sales for the first six months averaged 93.6 per cent of the bureau's nation-wide quota, and that only 11 states had made their quotas.

Leonard's June sales were shown to be five times as great as those for June of 1931, and the All-American Mohawk Corp. reported that its first-six-months sales exceeded by 125 per cent 1931's entire output.

In August, Standard Trade and Securities reported total unit sales for the first six months to be 589,955, as compared with 597,454 in the corresponding period of 1931. Aggregate dollar sales were 18 per cent under those for the first six months of the preceding year.

Frigidaire sales for the first 20 days of September increased 25 per cent over sales for a similar period in August. A report for its fiscal year ending July 31 showed Gibson sales to be 800 per cent greater than sales for the preceding year.

Copeland's September sales were 33 per cent above August sales, and Kelvinator sales in September were 12 per cent greater than its sales in September of 1931. Leonard's September shipments exceeded by 255 per cent those of the same period in the preceding year.

September Norge sales were 108 per cent of August sales, while Westinghouse sales in September were 59 per cent greater in dollar volume than those for August, and 17 per cent greater than those of September of 1931.

Cockrell's Figures

On Nov. 2, F. M. Cockrell, publisher of ELECTRIC REFRIGERATION NEWS, estimated that 750,000 electric refrigerators had been sold during the first nine months of the year, and that 80 per cent of these units had been sold by Nema companies.

Kelvinator shipments in October were 9 per cent higher than for any October in the company's history, and 170 per cent greater than for October, 1931. Leonard shipments in October were 450 per cent over October, 1931, shipments.

As compared with 1930 and 1931, Nema sales for July, August, and September of 1932 took a sharp drop. July household sales totaled 26,794, August's total was 23,124, and September sales were 30,513.

When Borg-Warner Corp., of which Norge Corp. is a division, issued its balance sheet on Sept. 30, it was shown that the parent corporation had current assets of \$13,537,085 against current liabilities of \$1,349,849.

Gibson's September business was 411 per cent greater than in September of the year before. Sales of \$4,500,000 were made by G. E. during the nine-week Monitor Top Campaign.

Kelvinator Corp. and subsidiaries reported net earnings of \$102,701.15 for the fiscal year ending Sept. 30, and Universal Cooler Corp. reported earnings equivalent to 42 cents per share on all outstanding Class A stock.

Leonard shipments for October and November were 261 per cent greater than shipments for the same period of 1931.

WE'RE BACKING THIS MAN TO THE LIMIT IN '33



"AMERICA today needs creative salesmanship, and such salesmanship will be justly rewarded. The hope of prosperity is increased consumption and the salesman is the answer to the problem. We are going to equip him, train him, support him and back him up in every conceivable manner."

P. B. ZIMMERMAN, Manager
Electric Refrigeration Department
General Electric Company

The G-E refrigerator retailer and salesman will be so thoroughly trained and modernly equipped that he will get a still greater part of electric refrigeration business in 1933.

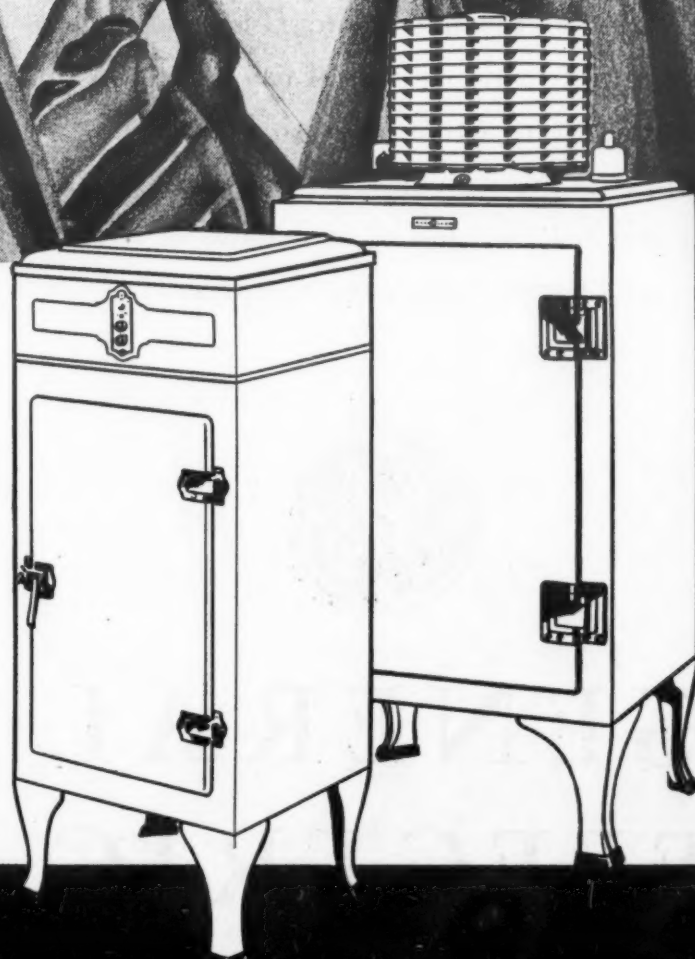
First, he will be schooled in the product... given intensive, personal sales training... and an effective sales correspondence course... trained in sales approach and sales closing. Then, he will be equipped with innumerable sales aids which have been tried, tested, proved. There's the pocket slide film projector, with which to show the sales story to

prospects... the Junior Salesman's Plan, by which interested prospects are developed in advance for the salesman... the Monitor Bank Plan, which convinces prospects that a G-E will pay for itself... new department store plan, furnishing leads to salesmen... result-producing campaigns and special contests... "door openers" and prospect finders... sales bonuses and prizes, in addition to commissions... and the General Electric Kitchen Coach which rolls up to the prospects' door and helps clinch sales. Add to this the extensive advertising... magazine, newspaper, outdoor, radio... direct mail and other aggressive sales promotion... and you have a picture of how the G-E refrigerator salesman is trained, equipped, supported to close more sales... make more money.

General Electric Co., Electric Refrigeration Department, Section DF11, Hanna Building, 1400 Euclid Avenue, Cleveland, Ohio.

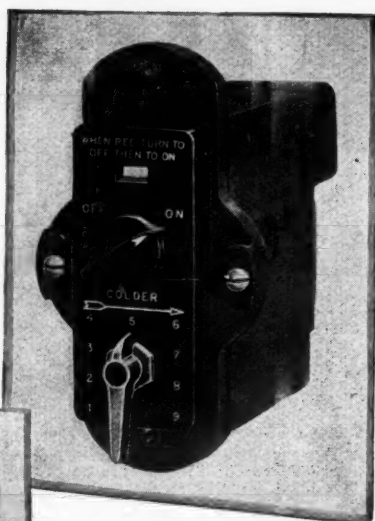
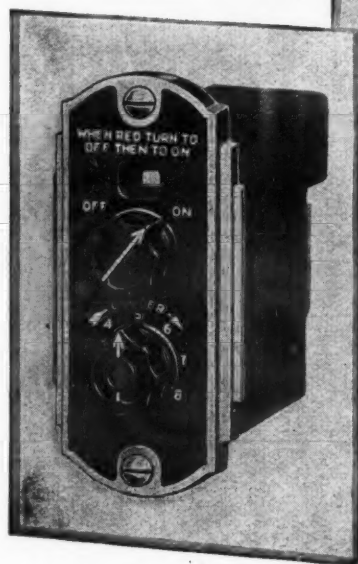
General Electric now offers retailers and salesmen the widest range of models and prices... from the famous G-E Monitor Top refrigerator, with its world-wide record for long-life performance, to the G-E Junior, outstanding value in the low-priced field.

GENERAL  ELECTRIC
ALL-STEEL REFRIGERATOR



G-E CONTROL

1931
1932
1933



GOING STRONG!

INTRODUCED in 1931—it was a hit from the start! Its dependable performance in 1932 gained new friends. And now, G-E control for domestic refrigerators advances in 1933 on a high tide of merited popularity.

Again and again, it has demonstrated its points of superiority: ease of wiring; ease of mounting anywhere on the refrigerator; accuracy of temperature control; completeness of overload protection; and fine appearance. Its unvarying reliability is attested by the manufacturers who have used it—and who plan to use it on their newest models.

If you haven't looked into G-E control for domestic refrigerators, it will pay you to do so. Ask to see an actual unit so that you can examine its precise construction. A G-E office near you will be glad to cooperate; or address General Electric Company, Schenectady, N. Y.



301-115H
**GENERAL
ELECTRIC**

CROSELY INTRODUCES 1933 REFRIGERATORS

(Concluded from Page 1, Column 5)
enhanced by Crosley engineers, who have added a skyscraper set-back touch to the top, and otherwise made the cabinet more distinctive than was the 1932 Crosley design.

Not only do Crosley engineers claim that the Shelvador adds to the capacity of the box (according to their reckoning, the Crosley 6-cu. ft. model has a food storage capacity equivalent to 7-cu. ft. boxes of conventional type), but they stress the added convenience of the Shelvador, which eliminates the necessity of reaching into the box for small articles. These small articles of food, Crosley engineers point out, occupy full shelf space while utilizing only a small portion of the cubic capacity of conventional boxes.

Advertising Slogans

With Advertising Manager G. H. Corbett, Powel Crosley, Jr., has coined these advertising slogans for the Shelvador:

"Butter is all right in the refrigerator but not on your sleeve."

"Would we be embarrassed if someone else had thought of the Shelvador?"

"The Shelvador adds to Shelf Space without increasing Floor Space."

"Men Will Want It"

Women Will Demand It

Children Will Cry For It

—Shelvador!"

"Get your breakfast out of the Shelvador—bacon, butter, eggs, etc., all convenient."

To demonstrate the food storage capacity of the Shelvador, Mr. Crosley placed a 1933 model 4½-cu. ft. box beside a 1932 model of the same capacity. Bottom of the 1932 model was filled with food; the shelves were empty.

Piece by piece, Mr. Crosley transferred articles of food—eggs, oranges, butter, cheese—from the Shelvador to the shelves of the 1932 model. When he had removed the last orange from the Shelvador and placed it within the 1932 cabinet, the latter had every available inch of shelf space occupied.

"Put one of these jobs with the door open in your window, and a woman will get the idea instantly," averred Mr. Crosley. "This feature requires no long-winded technical explanation. It needs no charts, diagrams, or X-rays. It explains itself at a glance."

Machine Substantially Same

According to Mr. Crosley and Chief Engineer J. H. Johnston, the Crosley refrigerating machine remains substantially the same as the one used in 1932 models.

All three boxes will employ the same sized unit. The 6-cu. ft. box will have 3½ in. of Thermocraft insulation, however, as compared with 3 in. of Thermocraft in the other two sizes. Dry-Zero was used in 1932 models.

Other minor changes include a larger evaporator, a neater capillary tube installation, and metal support (instead of plywood) at the bottom of the unit. By use of this metal support—also by inverting the frame and recessing a few parts—the overall height has been lowered.

Delco motors are being used. Units will be shipped from Cincinnati, cabinets from Cleveland. Deliveries, it is hoped, will begin about Feb. 1.

Mr. Crosley expects the 4½-cu. ft. model to be the biggest seller in the line. The 3½-cu. ft. job, priced at \$95, will be used as a "leader."

Last year Crosley prices began at \$89.50, f.o.b. Mr. Crosley calls attention to the fact that 1933 Crosley refrigerator prices are listed in round numbers (\$95, \$105, \$130) which, he thinks, lends dignity to the line. Crosley radio prices for 1933 all end with 99 cents.

Radio Record

During the last few months, Mr. Crosley told his distributors, Crosley Radio Corp. has attained first place (in unit sales volume) among all radio manufacturers, and the company has been showing a monthly profit ever since September.

Crosley produced more units in September than during any month since the "crash," and repeated this performance in November. For December, 1932, was recorded a greater cash volume than that for December, 1931. Production during a considerable portion of the autumn ran 3,000 radio sets per day.

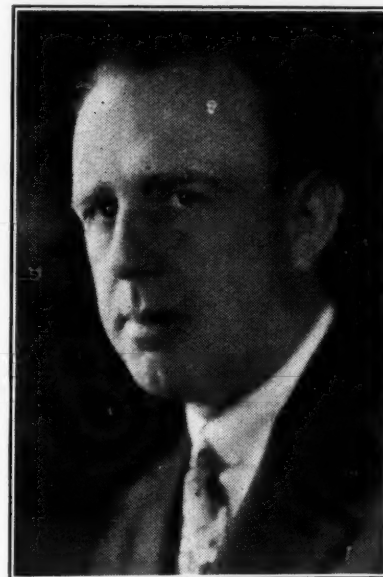
President Crosley recommended that the distributors set up separate departments for radio and refrigeration, so that the sales curves of both products might show gradual declines, instead of precipitous drops, when the selling season of one fades into the chief selling season of the other.

He also urged pushing of the new Crosley Roamio (auto radio with B battery eliminator). This auto radio with the new Crosley Synchronode power unit will retail for \$49.95 installed.

This Crosley convention was practically a one-man show, Powel Crosley, Jr., being it.

Shortly after 10 o'clock Friday morning, the distributors were herded into an ornate (Coral Gables architec-

Presents Line



POWEL CROSELY, JR.
President, Crosley Radio Corp.

ture) assembly room, which has remarkably tight soundproof construction. Velvet curtains draped a stage at one end.

For almost three-quarters of an hour the distributors chatted quietly among themselves while an organist played "sweet and low" melodies upon a large pipe organ which is a permanent part of the assembly room.

"Music hath charms to soothe the savage breast," and by the time Mr. Crosley arrived, they were in a mellow mood.

Immediately he took charge, and stayed on his feet before the distributors throughout the day. He speaks calmly, dispassionately, conversationally, and with glints of humor.

Occasionally he invited a member of his staff, particularly Chief Engineer J. H. Johnston, to help him answer questions put by distributors. He demonstrated the features of the new radio and refrigerator models himself; and when the new Roamio auto radio was brought out, he sat down on the stage with a screw driver and took the set apart.

Mr. Crosley appeared to especially good advantage in the role of answering questions, and as a debater. Mildly and disarmingly, frankly and straightforwardly, he answered objections—and also showed himself thoroughly familiar both with his products and with sales conditions in the field.

At the end of the session, Lee Bird was introduced to explain his new portable test rack, which is a trouble-finder for use in servicing refrigerating machines. John Hope, credit man, spoke for a couple of minutes.

Neil Bauer, young and personable sales manager, also took the floor at the close of the day to appeal for orders.

Specifications of Crosley Refrigerators

Model or Catalog No.	C-35	C-45	C-6
CABINET SPECIFICATIONS			
Overall dimensions, not including hardware			
Height (inches).....	50%	56%	57½
Width (inches).....	23½	23½	23½
Depth (inches).....	24½	24½	25½
Inside dimensions of cabinet liner			
Height (inches).....	23½	29½	29½
Width (inches).....	19½	19½	23½
Depth (inches).....	14½	14½	14½
Number of refrigerator doors.....	1	1	1
STORAGE CAPACITY			
Gross food storage capacity (cu. ft.).....	4.83	5.82	5.82
Net food storage (cu. ft.) (Nema rating).....	3.5	4.5	6.0
Number of shelves.....	3	4	5
Total shelf area (sq. ft.) (Nema rating).....	7.9	10.6	11.5
Greatest distance between any two shelves.....	12½	6½	6½
Shortest distance between any two shelves.....	5	5½	5½
ICE CUBE TRAYS			
Number of ice cube trays.....	2	3	4
Inside dimensions of trays (inches)			
Length (at top of tray).....	10½	10½	10½
Width (at top of tray).....	4½	4½	4½
Depth.....	1½	1½	1½
Number of cubes produced at one freezing.....	42	63	84
Weight of ice cubes produced (lbs.).....	2.67	4.0	5.3
COMPRESSOR SPECIFICATIONS			
Compressor capacity (lbs.) (ASRE rating).....	65*	85*	85*
Motor size (hp.).....	1-8	1-6	1-6
WEIGHT			
Net weight of complete refrigerator (lbs.).....	245	287	350
Total shipping weight (lbs.).....	312	350	350
PRICE			
Installed prices.....	\$95	105	130
*At zero lb. gauge.			

CABINET MATERIALS
Material used for exterior.....Metal
Material used for frame.....Wood
Finish of shelves.....Tinned

INSULATION
Nature of material.....Vegetable
Bulk or formed slabs.....Formed slabs
How waterproofed.....Hydrolined

FINISH
Cabinet finish (exterior).....Lacquer
Standard colors.....White
Special colors.....Green
Cabinet finish (interior).....Porcelain

HARDWARE
Process of manufacture.....Stamped
Basic metal of hardware.....Brass
Finish of hardware.....Chromium

EVAPORATOR
Evaporator construction.....Shell
Metal used.....Steel
Type of control.....Capillary tube
Solution used for brine.....None
Dimensions of ice cube.....1½x1½x1½

FEATURES
Model C-6—interior light
COMPRESSOR
Make of compressor.....Crosley
Type of system.....Conventional
Type of compressor.....Reciprocating
Compressor drive.....Belt
Location of compressor.....Above

G. E. ORGANIZES DEPT. TO SELL APPLIANCES

(Concluded from Page 1, Column 3)
tinue at its present location in Chicago, but it becomes an activity of the specialty appliance department."

In assuming direction of the distribution and sale of these appliances, the refrigeration department will have charge of all advertising, sales promotion and merchandising of this major home equipment.

W. J. Daily, manager of sales promotion for the electric refrigeration department, will direct advertising and sales promotion for these products. M. F. Mahony, manager of the merchandising division of the refrigeration department, also will assume added responsibility in connection with the other major appliances.

All of the products of the Edison General Electric Appliance Co., Inc., hereafter will carry the trade name of "Hotpoint," dropping "General Electric" from the Hotpoint name, says George A. Hughes, president of the Edison Co. Heavy duty cooking equipment, however, will continue to be marketed under the trade name "Edison."

W. A. Grove is advertising manager for the Hotpoint line. J. R. Poteat, who has been connected with the Hotpoint range sales for several years, will become identified with the new specialty appliance sales department and will specialize on range sales.

ALBANY SALESMAN WINS LEONARD XMAS CONTEST

(Concluded from Page 1, Column 4)

Hamilton Beach mixers were distributed to salesmen completing and reporting each group of five Leonard refrigerator sales during the contest. The winning salesmen were:

Robert N. Chapman, Chapman & Bannister, Wakefield, R. I.; Lyman M. Gammons, Lyman M. Gammons Sales Co., Taunton, Mass.; James E. Grafton, Jager Asmus Hardware Co., Wyandotte, Mich.; William Heaf, Grand Rapids Furniture Co., San Diego, Calif.; Thos. J. Dorato, Community Appliance Shop, Albany, N. Y.

F. M. McClanahan, Modern Appliance Co., Charleston, W. Va.; William R. Albright, Chas. E. Wells Music Co., Denver; J. E. Dolahan, Lindenwald Service, Hamilton, Ohio; Joe Pichette, Melody Radio Shop, Racine, Wis.; John C. Blied, John J. Blied & Sons, Madison, Wis.

Albert W. Schipper, Covington, Ky.; Jacob Singer, Robert L. Tober, and Maurice S. Thornton, all of May Co., Baltimore; M. S. Livingston, Omaha; Glen George, F. I. Somers & Sons, Inc., Montpelier, Vt.; Harry A. Heineck, St. Louis; Sidney Riddell, William Henger Co., Buffalo, N. Y., and L. Clark, Buffalo, N. Y.

CONDENSER	
Method of cooling.....	Fan
Type of condenser.....	Finned tube
REFRIGERANT	
Refrigerant used.....	Sulphur Dioxide
Chemical formula.....	SO ₂
LUBRICATION	
How often should motor be oiled.....	Annually
MOTOR	
Type of motor.....	Repulsion-Induction
How adapted to odd frequency.....	Change motor
Additional cost.....	None
How adapted to direct current.....	Change motor
Additional cost.....	None
CONTROL	
Type of control.....	Temperature
Temperature regulation.....	Manual regulator
How defrosted.....	Shut down unit
POLICY	
Guarantee on cabinet.....	One year
Guarantee on system.....	One year
By whom serviced.....	Dealer
Are replacement parts sold to independent service companies.....	No

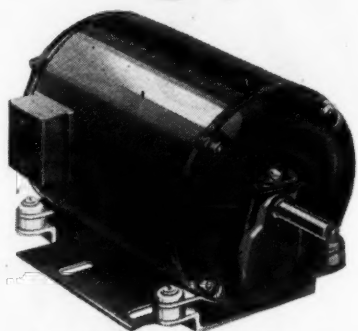
Congratulations, **KELVINATOR DISTRIBUTORS!**



THE past month has been a source of sincere gratification to us. One by one, you have come to the factory to discuss plans for 1933. One by one, you have sat in the offices of various Kelvinator executives and talked over the biggest program of constructive activity in our entire 19 years in the industry. And one by one, you have, through an intimate knowledge of your territory and from your experience in the field, contributed ideas and suggestions which will make the 1933 Plan more productive—surer of success. ★ Not one of you had any misapprehension about business in general, or the refrigeration business in particular. No one of you failed to realize that Kelvinator had appreciably strengthened its position in the industry in 1932. And that 1933 represented an even better opportunity for you and for Kelvinator to make greater progress. And not one of you went into the Plan half-heartedly, but whole-heartedly—*all the way*. ★ We thank you. And, at the same time, with due modesty, we congratulate you for being a part of such an organization and such a Plan. And this goes, too, for your dealers who work with you as you have worked with us. ★ KELVINATOR CORPORATION, 14245 Plymouth Road, Detroit, Mich. Factories also in London, Ontario, and London, England.



8 big features



A new member
of the famous
"RED BAND"
motor family

Patents allowed and pending

Of the Built-In Capacitor Motor

- 1 Compact and neat in appearance. Capacitor built inside motor frame, the newest motor development.
- 2 Simplicity of parts. Satisfactory, economical and long-time service with a minimum of attention.
- 3 Quiet operation. A big reason why the new Howell motor is ideal for home appliances.
- 4 High starting torque. Smooth, quiet starting under any load prescribed by Howell engineers.
- 5 High efficiency and power factor and a liberal overload capacity. Real operating economy.
- 6 No commutator, no wire-wound rotor—nothing to get out of adjustment on this new motor.
- 7 Splash proof. A protected frame guards against entrance of dirt and splashing liquids.
- 8 No radio interference. Another reason why the Howell is ideal for home appliances.

Write for additional data

HOWELL ELECTRIC MOTORS CO.
HOWELL, MICHIGAN

Nationwide Coverage

with branch sales offices, motor warehouses,
and service stations

Assures Quick Service

when a replacal motor or a motor-part is
urgently needed



Above—Location of
Wagner's 26 branch
offices and service
stations.

At Left—Airplane
view of the Wagner
plant, located at St.
Louis, in the center
of the U. S. A.

You realize the importance of quick service when a replacal motor or a repair part is needed. So does Wagner—hence, 26 branch offices, warehouses and service stations in all parts of the country. Each service station has a complete stock of motor-parts, available for immediate shipment.

Your customers expect uninterrupted refrigeration, and immediate repairs or replacals when trouble develops. Wagner's nationwide coverage is your assurance that your customers need not be disappointed.

When there's trouble with any make of motor, or any information wanted on motors, get in touch with Wagner's nearest branch.

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, U.S.A.

MOTORS TRANSFORMERS FANS BRAKES

COMPANION MERCHANDISE

Kelvinator Designs New Oil Burner

(Concluded from Page 1, Column 2)
culties have been corrected or the system serviced.

When the Kelvinator burner is installed, says Mr. Harlan, no alterations in the existing heating plant are necessary. The grates need not be removed, and the hearth requires no alteration.

Continuous operation of the burner keeps warm air currents in constant circulation throughout the rooms being heated, and thus eliminates collection of cool air layers near the floor.

Amount of oil consumed by the burner—and the resultant amount of heat given off by it—is controlled by a mechanical temperature selector installed in one of the rooms.

The selector is an alcohol container connected to a capillary tube leading to a needle valve at the source of the oil supply.

As the room temperature rises or drops, the alcohol in the tube expands or contracts and so regulates the needle valve to reduce or increase the amount of oil being fed into the burner, Mr. Harlan explains.

Temperature Selector

The selector will control temperature constantly within one-sixth of one degree, he claims.

A similar regulation device is attached to the boiler, in steam heating systems, to insure safe and proper steam pressures as the amount of heat is increased or decreased by the selector on the floor above.

In hot water and hot air heating systems, apparatus operating on the same principle as that described for the steam heating system is used to supplement the work of the temperature selector in the living quarters.

Limits Oil Passage

Another device attached to the oil tank limits the maximum amount of oil passing to the burner at all times.

This, says Mr. Harlan, eliminates the necessity of building several sizes of burners, as the instrument may, when a burner is installed, be set to supply sufficient oil to heat homes ranging in size from a few rooms to those requiring 1,000 sq. ft. of equivalent steam radiation.

Within the burner is a hydraulic air control which regulates the amount of air mixed with the oil passing into the combustion ring. Only No. 1 fuel oil may be used in the burner. A 1/20-hp. motor is used in the unit.

Bimetallic Coil

One safety device on the burner is in the form of a bimetallic coil which is so located that it is heated constantly by the pilot light (which may be a gas or oil flame).

If, at any time the pilot light is extinguished, the coil expands, and shuts off the supply of oil passing through the burner. Another safety feature of the unit is an automatic governor on the burner fan which shuts off the oil supply if the motor ceases operation for any reason.

A third safety device is a lever which stops the inflow of oil whenever the burner is swung away from the furnace door.

Plans for distributing the Kelvinator burner have not been completed, according to Mr. Harlan, but it has been definitely decided that the territory to be covered during this year's selling season will be the section including Minnesota and all states east to the coast, and Missouri and all states north.

Georgia Power Pushes G. E. Kitchen Plan

ATLANTA, Ga.—A bill staffer, featuring two model kitchens, and inviting customers to ask for the General Electric Kitchen Institute floor plan sketch forms, is being sent to all patrons of the Georgia Power Co., here, General Electric dealer.

All stores of the utility company have been provided with a supply of the floor plan sketch forms along with an institutional window display featuring the all-electric kitchen idea.

Klenzair Uses Heater To Humidify Rooms

TOLEDO — A heater attachment which serves to increase the speed of humidification and to heat the room has been provided for the Klenzair room-type air washer.

This attachment fits the rear of the machine. When attached to a wall outlet, the resistance wire gets red hot. The motor draws the air over these hot wires, so that the air, when blown into the room, is hot and moist.

DETROIT CO. BUILDS 2 ELECTRIC RANGES

DETROIT—Detroit Vapor Stove Co., manufacturer of gas ranges, has organized a subsidiary under the name of Detroit Star Products Co. to manufacture a line of electric ranges which will retail at \$120 and \$185.

Model 5700, the lower priced unit, is a full porcelain table-top range, with four open-type top units—one of which operates at 2,000 watts on high, two at 1,200 watts, and another at 660 watts.

This model has two roller bearing utility drawers, a 16x13x19 1/4-in. oven, and a separate broiler. A single unit, operating at 2,800 watts on high, 1,800 watts on medium, and 1,000 watts on low, serves both oven and broiler.

Oven temperature is controlled by a silent, direct-break, mercury-type thermostat which will operate on direct or alternating current of any cycle.

Model 5500, retailing at \$185, is so constructed that all porcelain parts are supported on a full angle steel frame. It has four Chromalox, enclosed-type, top units of the same wattage as those on model 5700.

Other of its features include a drawer type warming compartment, heat for which is supplied by a 125-watt unit under the drawer; one utility drawer; a 19 1/4-in. oven, and a separate Roll-drop broiler.

Both models are wired for timer clocks, and have two utility outlets in addition to the timer outlet. The oven bottom, racks and rack guides, broiler, utility drawers, and porcelain pan under the table element are all removable for cleaning.

The new ranges are available in white and ivory finishes, and in the following color combinations: ivory and Nile-green Marblod, ivory and blue-green Marblod, ivory and sun-tan Marblod.

Plans for distributing the new ranges have not been completed, according to company officials.

CLEVELAND FIRM BRINGS OUT ELECTRIC HEATER

CLEVELAND—The Cleveland Heater Co. of this city has recently placed a new Rex electric water heater on the market. The new heaters are made in six sizes and three models, and are equipped with temperature and pressure relief valves.

Storage tanks used in the manufacture of the heaters are made from Cop-R-Loy steel, and are tested for 300 lbs. test pressure. Automatic control is afforded on the heaters by the Rex electric thermostat.

Rockwool, a heat retaining fibre made by sending a blast of steam through molten rock, is used as the insulating material. Heat loss by circulation of hot water is minimized by a built-in heat trap, a U-shaped pipe which prevents hot water from rising into the circulating lines.

Westinghouse Builds Ultra-Violet Lamp

EAST PITTSBURGH, Pa.—A Violet bridge lamp which gives ultra-violet rays as well as reading illumination, has been placed on the market by the Westinghouse Electric & Mfg. Co. Sitting directly under the "vidette" shade for three-quarters of an hour, either reading or playing bridge, will produce approximately as much vitamin "D" in the system of the user as can be obtained from a 15-minute treatment with a therapeutic sun lamp, Westinghouse engineers claim.

The new lamp will not inflict severe sunburn although regular usage will give a mild tan, state the engineers.

Merriam Opens Oil Burner Display

SCHENECTADY, N. Y.—A Wayne Merriam, General Electric refrigerator distributor here, has opened a new oil burner display room at 252 Genesee St., here, under the management of F. J. MacMackin. The new display room carries a full line of General Electric oil burners.

Crosley Introduces D.C. 'Fiver' Radio

CINCINNATI—Crosley Radio Corp. has introduced the "Fiver" model for d.c. and a battery model using the new 2-volt tubes, each to sell at \$19.99, the same price at which the a.c. "Fiver" model sells.

MOHAWK TO MARKET LINE OF 5 WASHERS

NORTH TONAWANDA, N. Y.—Five models, ranging in price from \$59.50 to \$109.50, constitute the new line of "Mohawk" washers which has been introduced by the All-American Mohawk Corp. here.

A 1/4-hp. direct-connected motor is standard on all models. Tubs are constructed of Armco iron, with an all-porcelain finish. A feature is the corrugated wall which gives a rubbing board effect and increases the agitation of water in the tub during washing.

Aluminum Agitator

The agitator is of the clover-leaf type of heavy aluminum. The wringer is an improved Corcoran type with live rubber rolls and safety release. The wringer head is equipped with drop-forged gears. Reversing action is accomplished by a hardened steel spool. Driving gears are machine cut and full size. All bearings are bushed with phosphor bronze bushings, and are enclosed in a ventilated gear case assuring continuous lubrication with oil.

All models are equipped with a quick-lift lid with rubber seal ring.

Model A, selling for \$59.50 f.o.b. factory, has a tub mounted on rubber gaskets which remove strain and prevent undue vibration.

Model AP, selling at \$69.50, has a water pump which eliminates the necessity of carrying water to empty the tub.

DeLuxe Model

Model D is a de luxe model selling for \$79.50. It is equipped with a corrugated rubbing-board wall-type tub with porcelain finish, over-sized live rubber wringer rolls, with safety attachment, and the no-splash wringer apron and drain.

Model DP has all the features of the "D" models and in addition is equipped with a water pump.

Model S is the Mohawk "Speedi-Spin" washer, a combination washer and dryer. This model has two compartments, the larger tub being the washing tub and the smaller one the rinse and "Speedi-Spin" basket.

DUNNING WILL SUPERVISE G. E. RADIO DISTRIBUTORS

BRIDGEPORT, Conn.—R. Del Dunning, radio advertising manager of the General Electric Co. for the past two years, has been appointed supervisor of radio distributors' sales activities and field sales promotion work, and Lee Wichelns of the radio advertising department has been promoted to Dunning's former position.

Mr. Dunning has been connected with the General Electric Co. since 1920, first serving for two years in the publicity department and three years in the commercial service section at Schenectady, N. Y.

He was transferred to the advertising division of the merchandise department here, where he handled the advertising of Tungsar battery charges, insulating materials, vacuum cleaners, and fans.

When General Electric placed its own radio on the market in 1930, he was appointed radio advertising manager, and was responsible for the "Believe your own ears" national advertising campaign.

Wichelns who takes Dunning's place as radio advertising manager has been associated with the General Electric Co. since 1931.

In 1923, he became connected with the radio industry, joining the C. Brandes, Inc., which concern later became Kolster Radio Corp., of which he was advertising manager until 1929.

From 1929 until 1931, he was connected with the advertising department of the Brunswick Radio Co.

Burner Manufacturers Reserve Show Space

NEW YORK CITY—Approximately one-half of the available space being offered by the American Oil Burner Association for its tenth annual show and convention to be held at the Hotel Stevens, Chicago, from June 12 to 16 was reserved by prospective exhibitors in the first 30 days of sale, according to association officials.

The oil burner show will be called "A Decade of Progress" and will carry out the idea of the World's Fair or "A Century of Progress."

New York G. E. Dealer Opens Model Kitchen

RAVENNA, N. Y.—Hundreds of people inspected the General Electric all-electric kitchen during opening week ceremonies held by R. B. Wolfe, General Electric dealer here, in connection with the opening of his new store.

Electric cookery demonstrations were given during the week by home service directors of the Central Hudson Gas & Electric Corp.

"174 sales in '32 Over the 200 mark in '33"

• SAYS L. E. TOMPKINS
WESTINGHOUSE REFRIGERATOR
DEALER IN CLEVELAND SUBURB



HIS RECORD IN 1932

Without the assistance of a single salesman other than himself — sold 174 Westinghouse Refrigerators (domestic) from his store in Brooklyn, Cleveland suburb. Outsold all other competitors!

ABOUT 1933

Tompkins says — "Going to break the 200 mark! With the **HERMETICALLY-SEALED** mechanism, with Westinghouse quality at popular prices, I'll not only outsell competitors again, but I'll smash my last year's record."

● Congratulations, Mr. Tompkins! You've made a real record — the kind of record every Westinghouse Dealer can expect if he sells the Westinghouse features and cooperates with the Westinghouse merchandising plans as you have done. We've given you the ammunition. *You've supplied the PUNCH.*

Of course, you'll smash the 200 mark this year. For as you know Westinghouse plans for 1933 call for advertising... sales promotion... and merchandising programs more *complete*, more *compelling* than ever! *Prices are lower.* That means that you can sell **QUALITY** at prices just fractionally higher than the cheapest makes. *Discounts are greater.* That means you make more money from each sale. **HERMETICALLY-SEALED** mechanism and **DUAL-AUTOMATIC** control will continue to save you service expense. Sure, you'll break your 1932 record... and make more money doing it, too!

ALERT MERCHANTS, ATTENTION!

L. E. Tompkins is just one of many Westinghouse Refrigerator Dealers who have made good with the Westinghouse Refrigerator Franchise. It's a real money maker. A franchise that gives you the product, the type of sales assistance, the discount and financing arrangements you need to make a profit in refrigeration.

And Westinghouse Dealers can further profit by a connection with one of the greatest names in electricity... a connection that offers possibilities for merchandising a complete line of quality home electrical products... *at a profit.* Your territory may still be open. Before you lay any plans or sign any franchise for 1933, get full details on Westinghouse. Write, wire, or telephone... *today!* Westinghouse Electric & Manufacturing Company, Refrigeration Department (E. R. N. 1-11), Mansfield, Ohio.

Westinghouse



Dual-automatic **REFRIGERATOR** *Hermetically-sealed*

ELECTRIC REFRIGERATION NEWS

The Newspaper of the Industry

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Eye Appeal

FROM several quarters come indications that the electric refrigeration industry may not become so embroiled with the price question in 1933 as it was in 1932.

The industry seems to be settling down on the \$112 base price established by Frigidaire last September, and unless Frigidaire boots its list quotations downward again, there seems little likelihood that any drastic price slashes will be made in the near future.

Perhaps the most encouraging sign to those who want to see the industry emphasize something besides price is the increased attention being paid to styling.

1933 Models Show New Trend

Gibson's stunning new series "L" would have been considered entirely too ultra ultra a year or so ago. So, too, would the new Grunow cabinet which Briggs is manufacturing. Today these streamlined cabinets are apparently being accepted as the forerunners of new cabinet designing, just as the low-slung streamlining and V-radiator of the Cord motor car (and shortly thereafter the Chrysler) were harbingers of a new trend in automotive body construction a few years ago.

It is being hinted that Norge will shortly bring out a styled cabinet of much beauty, as will Copeland, Tricold, and others. Servel's pearlescence finish has already been announced. Majestic has added new dignity to the appearance of its box.

Crosley has applied some plastic surgery to the profile of its cabinets. Also its Shelvador (food storage compartment on the inside of the door) is a visual feature, one which needs no explanation but which is appreciated on sight.

Automotive Executives Concur

That this new trend toward style is a move in the right direction is confirmed by leading executives of the automobile industry, who are pinning their hopes to distinctive styling this year as never before. These executives have noted the record of the Graham Eight, 1932 sales of which were double those of 1931, following the adoption of a design so radical that it was pooh-poohed by a considerable share of the industry.

Byron C. Foy, president of De Soto Motor Corp. (which also bettered its 1931 record last year, and chiefly because of its advanced styling) declares that this year "the American public is more style conscious than ever."

"Every business man senses this growing demand for smartness," asserts Mr. Foy. "Manufacturers in all lines are finding that not only must they give the public more value for the dollar, but the package must reflect this fact—it must have an appealing appearance; it must be smart."

"The proof is all around us. Take for example some of the staple commodities we buy at the grocery store. Notice how many of the packages have been restyled and redesigned in the last year. The buying public is demanding a fresh, attractive appearance in this as well as other lines."

"The matter of style and smartness in the ap-

pointments of the home, too, is coming in for greater attention than ever. Regardless of the financial status of the home owner, in the vast majority of cases he insists on being up to date—and he can be at little cost.

"An indication of this attitude is seen in the success of style magazines, periodicals, decoration, etc., which, despite a period of trying times, have flourished and, in some cases, reached new levels of circulation, all bearing out the growing interest in style.

"It is a curious but nevertheless established fact that, although people are paying considerably less for the things they buy today as compared with two years ago, they are placing greater emphasis on style at these lower prices than they did on a similar article at a higher price some time ago."

Likewise John Oswald, Oldsmobile engineering executive, declares that "style changes will be the most pronounced features of 1933 automobiles."

"Curves provide the grace in any form of art, and the 1933 automobiles will be a symphony in curves with angular forms practically eliminated," observes Mr. Oswald.

Curves Becoming More Popular

Again automobile thinking would appear to be in accord with refrigeration thinking, for most of the new styling effects which will be seen in 1933 electric refrigerators will be achieved by the more liberal employment of curves. (Incidentally, curves are coming back strongly in the latest fashions for women).

In the past competitive fights have been waged on but three fronts: mechanical superiority, guarantees, and price. Relative merits of hermetically sealed vs. open type compressors, reciprocating vs. rotary action, and various types of controls have been argued by the hour and by the page. Today these arguments are losing force because many manufacturers are offering both hermetic and conventional lines, boxes with machines in top and boxes with machines in the bottom, etc.

Women Appreciate Style, Appearance

After all, should it not be easier to dress up a refrigerator so that a woman can see the difference, instead of sweating and straining to convince a confused and befuddled prospect that one's product is mechanically superior to another which looks exactly like it and for which equally extravagant claims are being made?

Few things in life have so much appeal to women as style and appearance. And women have a good deal to say in the matter of choosing an electric refrigerator. The well-known argument, "well, I have to live with it, and you don't," will undoubtedly work with telling effectiveness when a choice is to be made between a styled electric refrigerator and one of undistinguished appearance.

Aids Department Store Selling

Another point in favor of refrigerators designed to sell themselves on sight is the increasing importance of department stores as retail outlets for electric refrigerators. One of the chief problems in this connection has been the difficulty of getting department store clerks to make a good presentation of the merits and features of particular makes of refrigerators. This dilemma becomes much simpler when the features can be seen and understood instantly (such as the Leonard Len-a-Dor, Gibson PresToe, and the Crosley Shelvador) and when the cabinet is styled. Distinctive appearance also helps when a patron must choose one of several makes all lined up in a row on a department store floor—as Mayflower proved to its entire satisfaction in a series of department store tests last year.

Although a majority of the manufacturers will probably postpone the announcement of distinctively styled cabinets until they see the fate of the few pioneering models which will be brought out this year, it is true that executive thinking is being turned in this direction for the first time in many years. And those who are pleased with anything which steals the industry's attention away from price should be happy beyond measure that the style trend is gaining such momentum.

Good performance will keep customers satisfied after the purchase; beautiful style will attract customers before the sale.

LETTERS

Morton Forecasts

B. F. Sturtevant Co., Inc.
Hyde Park, Boston
Jan. 5, 1933.

Editor:

I have been a little slow in replying to your letter of Dec. 19 in which you list a number of questions as to the future of the electric refrigerator. There is a lot that could be said, and in a way I am not so closely in touch with the merchandising end as many others to whom you probably have written, and also as you know the Sturtevant production in this particular field has been comparatively small.

I am going to stick rather closely to your questions, and at the start I have a feeling that the answer to almost every question is dependent to a great extent on the trend of general business. Taking the first question for instance, I honestly expect to see some improvement in general business during 1933, and with it I should expect some increase in the sales of electric refrigerators, but I doubt very much if the increase can ever reach the previous peak.

I am speaking particularly from a dollars and cents standpoint, and on this basis it is my feeling that the peak has been reached.

I feel very strongly that for 1933, at least, price will be the most effective sales appeal. I should list the various points which you have given as price first, style second, performance third, quality fourth, convenience fifth, and economy sixth.

I do not believe that the establishment of a performance standard would be helpful in increasing sales in 1933, and I am inclined to feel that in this industry, as in most others, it will be necessary to depend upon the integrity of the manufacturers to maintain quality.

As I have said above, I expect to see the price appeal a very important position in 1933, and on this basis it seems to me that while it may be possible to maintain reasonable prices on larger cabinets the prices on smaller cabinets are bound to stay where they are or go lower, depending upon general business.

I am inclined to believe that the sale of private brand electric refrigerators through large retail outlets will increase for a time at least, and I believe a great deal of this business is going to be handled by manufacturers who at the same time market refrigerators under their own trade name.

I can see no serious difficulty arising from the manufacture and sale of private brand refrigerators if handled through the larger and more reliable retail outlets.

It seems to me quite logical that the large department stores should handle electric refrigerators, and they may handle them under the established trade marks or with a private brand name.

A great many department stores have already established effective service organizations in other lines, and with the seasonal demands on these service organizations the electric refrigerator may well fit in.

Any further reduction in down payments or lengthening of time payments does not seem to me economically feasible, and with the necessity of further reducing prices I should not be surprised to see a tendency in the opposite direction. It does not seem to me that free trial selling is a sound procedure.

Long-time guarantees are likely to work out to a disadvantage in my opinion. After all the customer pays for the guarantee, and he is likely to accept the guarantee as an indication of quality without proper regard for the responsibility of the manufacturer.

It seems to me that the present guarantee or even a shorter one on products made by the older and more reliable firms would be just as effective so far as the customer is concerned, and would fit in better to the present trend of prices.

There is little doubt in my mind but what the market for commercial refrigeration is increasing, and from a dollars and cents standpoint I believe that the possibilities of increase are much greater than in the household market at the present time. This phase of the business is bound to increase as general business increases as I feel that the demand is well established.

As to air conditioning, unless general business increases materially, I do not believe that the so-called household air-conditioning sales for 1933 are going to in any way indicate a demand. There is already considerable demand for home air conditioning, but it is a decided luxury and must wait for better business.

I hardly believe that air-conditioning equipment for the home has been developed as yet to a satisfactory marketable stage. A great deal can be done to decrease the complication of the present equipment, also decrease the price.

Already, this can be done in new

buildings, but is not so readily done in existing homes. This market ought to develop within the next five years.

It is only logical that merchandising of electric appliances, etc. together with electric refrigeration will increase. It seems to me that oil burners and coal stokers fit in very nicely with the electric refrigeration merchandising and servicing.

Various other electric equipment will very nicely be merchandised along with refrigerators, especially by the large electrical concerns now in the field, but the oil burners and stokers seem to be more nearly in the class with electric refrigerators, allowing the dealer to make use of his full force and equipment throughout the year.

Finally, I would compliment ELECTRIC REFRIGERATION NEWS on the effective way in which it covers electric refrigeration as an industry. It seems to be the most comprehensive publication available at the present time, and my only suggestion would be that, due to the undoubted future of air conditioning, ELECTRIC REFRIGERATION NEWS make an effort to cover this field in as thorough a manner as is possible.

H. E. MORTON,
Refrigeration Dept.

Performance

Dry-Zero Corp.
Chicago

Jan. 3, 1933.

Editor:

The success of six Missouri Norge dealers in clinching sales by demonstrating before prospects' eyes the actual efficiency of Norge refrigerators, as told on page 1 of ELECTRIC REFRIGERATION NEWS for Dec. 28, 1932, I believe to be the most important merchandising event of the year. I feel that these dealers are perhaps pioneers of a revolutionary movement in electric refrigerator selling.

The procedure used by these dealers is simple. With recording instruments connected to a showroom cabinet, the dealers' salesmen are able to present prospects with graphic proof of performance.

This simple beginning may launch a new merchandising era—one in which quality will not only be claimed but proven. Quality is claimed for nearly everything, but seldom is it demonstrated, particularly before the customer's eyes.

Such demonstration is always valuable; but today, with a public skeptical of everything because it has been bamboozled by cheap merchandise for two years, proof of quality should be the kingly of the merchandising plan.

For six months I have been advocating the use of some such demonstration by dealers handling good refrigerators because it would enable them to prove before the prospects' eyes that good refrigerators are worth more than the difference between their price and that of cheap, shoddy boxes. Apparently the recording instrument method used by the six Norge dealers accomplishes this with marked success.

Below are listed nine points favoring this method of selling.

1. It shows why the higher-priced, well-built refrigerator is a better buy than a cheap, poorly built cabinet.
2. It sets up positive, specific proof instead of mere claims.
3. It answers the public's question: Why isn't a low-priced refrigerator just as good?
4. It educates the public on what good refrigeration really is.
5. It provides the dealer with a means of showing the actual performance of his cabinet.
6. It exercises a powerful psychological influence on the prospect.
7. It puts the prospect "behind the wheel" in the same sense that an automobile demonstration does.
8. It gives the public, which is tired of bargain merchandise, a sound argument for buying quality.
9. It does all these things forcefully and graphically before the prospect's eyes.

When I suggest that the use of these recording instruments to prove performance may be the forerunner of a revolution in refrigerator merchandising, I have in mind the fact that the public today cannot, without considerable study, detect any difference between the \$59 electric refrigerator and the one that sells for \$135. Both claim the same remarkable performance; both offer the same conveniences, the same gadgets, and approximately the same beauty of appearance.

Against the reputation of the builder of the standard refrigerator stands the half price of the unknown maker. Under these conditions it is not strange that the prospect often chooses the lower-priced cabinet.

No standard manufacturer has ever educated the public on what complete electric refrigeration really is. Neither has he taken them into his confidence and shown them the real performance facts about his refrigerator.

Yet that is exactly what is needed, and this need, I believe, is met by the ingenious system used by these half-dozen dealers. That is why I think they may well be pioneers in a new merchandising era, and that the story of their efforts which appeared in ELECTRIC REFRIGERATION NEWS may be the most important merchandising news of the year.

HARVEY B. LINDSAY,
President.

DEALERS:

Don't make a move until
you know the answer to
this question . . .

What is MAJESTIC
going to make
in 1933?

NO ENTERPRISING DEALER can afford to be caught napping *this* year. No wide-awake merchant is willing to trail when he can be out in front.

Consequently, dealers everywhere want to know "What is Majestic going to make in 1933?"

Many of them know from experience that it's much harder to *compete* with Majestic than to *sell* Majestic. *And far less profitable!*

For instance—when Majestic revolutionized the radio business. Were you one of the dealers who reaped a harvest then?

When Majestic blazed the trail to lower prices on supremely fine hermetically sealed refrigerators. Did you cash in on *that* timely move?

Whether you did or not, you're alert *now!* Your eye is on Majestic. Keep it there!

Advanced as Majestic radio design has always been, the public will find a new thrill in the selectivity and tone of the 1933 models now being built.

Refrigeration is yet in its infancy. For instance—has the industry developed the refrigerating unit to the highest peak of perfection? Is there a refrigerator wall, today, that absolutely *isolates* the interior from the exterior?

Unquestionably, the public demands improvements in radios and refrigerators. A "new deal" is the order of the day. *Majestic accepts the challenge!*

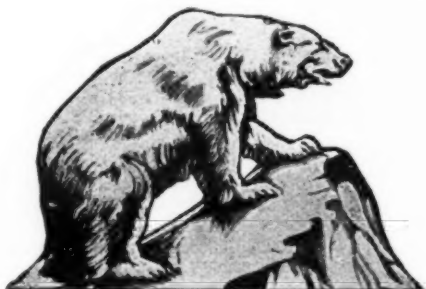
Every worth-while dealer in the country will be in an enviable position in 1933. A choice of lines will

be offered him. Surely it is no time to make a mistake!

Majestic offers dealers a year-round business—the good will of a name known the world over (a household word in over 4 million homes)—and a progressiveness in manufacturing and merchandising practice which meets market demands *the minute they are felt!*

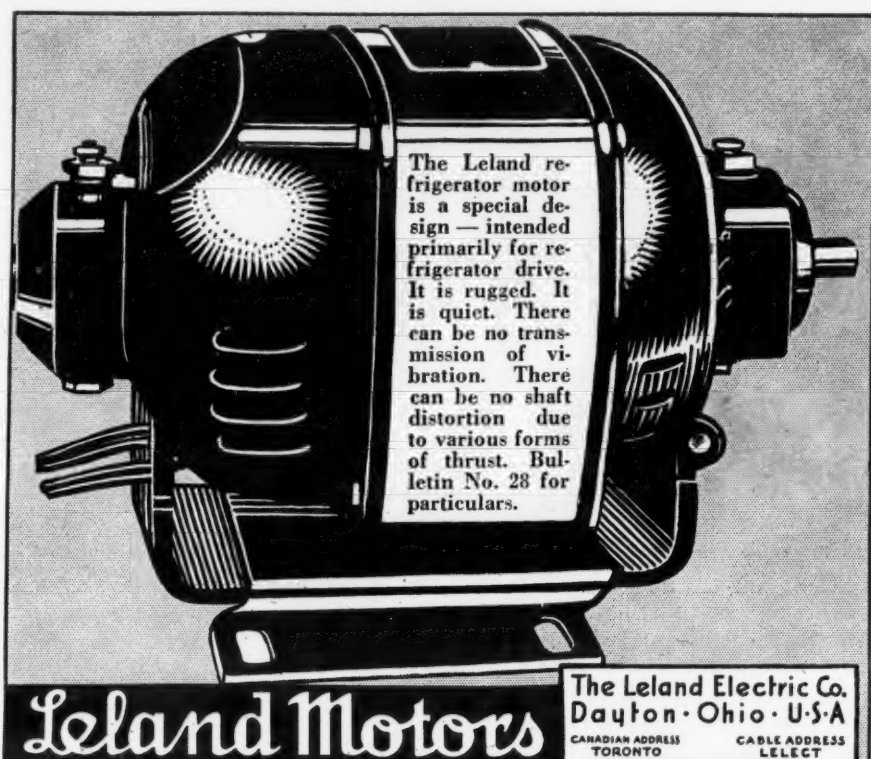
Isn't this the kind of a program you want in 1933? Then sit tight and wait a few days more for the facts.

GRIGSBY-GRUNOW COMPANY, Chicago, and affiliates,
with factories at Chicago; Toronto; Bridgeport; Oakland;
London, England; and Sao Paulo, Brazil.
Manufacturers also of MAJESTIC RADIOS

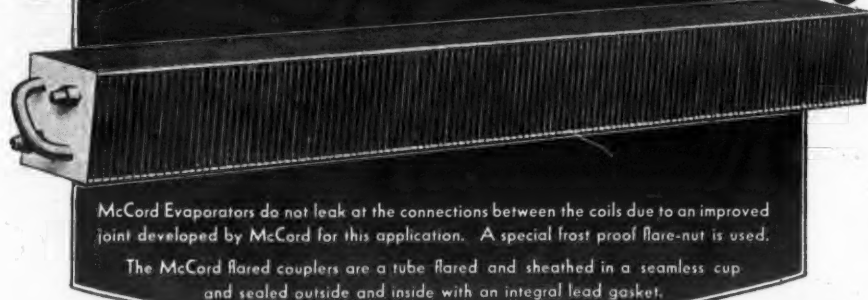


MIGHTY MONARCH OF THE ARTIC

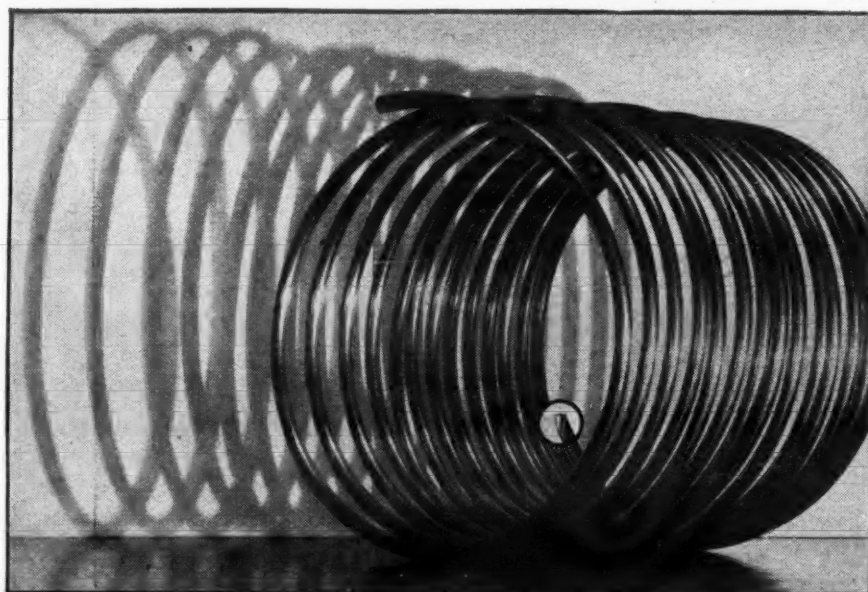
Majestic
ELECTRO-SEALED
REFRIGERATION



MCCORD COMMERCIAL EVAPORATORS



MCCORD RADIATOR & MFG. CO.—DETROIT MICH.



FRENCH TUBES to fill every standard and special need

THERE ARE French Copper Refrigeration Tubes . . . small diameter and thin wall seamless tubes . . . for every refrigeration requirement.

Stock sizes are 1/4 in., 3/8 in., 7/16 in., 1/2 in., 5/8 in., and 3/4 in., all in .035 in. gauge. Heavier gauges can be made to order. Stock coils are 25, 50 and 100 feet long. Longer lengths can be supplied at short notice.

French Deluxe Copper Refrigeration Tubes are free from oxide and foreign matter. Each coil is completely dehydrated sealed, rigidly tested and reaches you ready for use. For manufacturers who prefer to do their own dehydrating, the French Manufacturing Company produces copper tubes dried (commercially dehydrated), with either open or closed ends.

All French Copper Refrigeration Tubes possess the requisite properties for lasting, dependable service. Their grain structure is uniform. This important quality is in every coil because highest metallurgical skill, long manufacturing experience and only the best of raw material go into their production. Additional information will be furnished upon request.



THE FRENCH MANUFACTURING CO.
General Offices: Waterbury, Connecticut

FRENCH REFRIGERATION TUBES

ENGINEERING

PREDICTS ADVENT OF MORE QUIET MOTORS

EAST PITTSBURGH, Pa.—During 1933, industry will witness radical improvements in motors for driving automatic domestic devices such as refrigerators, air conditioners, and oil burners, according to E. B. Bremer, appliance electrification manager, Westinghouse Electric & Mfg. Co. Chief among these will be the capacitor motor, he believes.

"The American public is demanding and can soon have motors in their refrigerators which are more silent than a household fan, motors which can be stalled on the line for days at a time without burning out, and motors of higher efficiency with resulting lower power bills," he says.

Returns from Tour

Just back from an extended tour of the field, Bremer is confident that the advent of the silent, self-protecting motor will have a stimulating effect on the refrigeration business.

He said, "Today Americans are refrigerator-conscious, but with silent second speeds in their automobiles, and even the tick removed from their clocks, prospective purchasers are often critical of motor noises in refrigerators. With the swing toward small apartments, noise has become doubly objectionable."

All-Metal Suspension

"In their war against motor noise, engineers have recently developed a new noise-proof mounting for refrigerator motors, built entirely of steel."

"Tests have shown that the all-metal suspension is superior to rubber, since it is free from aging, a common trouble of spongy materials," he declares.

"Besides silence, another consumer demand about to be fulfilled is that of a motor which will deliver its last available ounce of power regardless of service conditions, and yet disconnect itself from the line when it gets too hot."

Cites Power Emergency

"Recently an emergency caused several blocks in an eastern city to be without electricity for nearly an hour. Refrigerators in the affected district stopped running, and after the power supply returned, several conventional motors in the district burned themselves up in attempting to re-cool the refrigerators."

"Self-protecting motors would have turned themselves off when they got in the danger zone, waited until they had cooled down a bit then start working again, repeating the cycle until reaching normal operating conditions," Bremer asserts.

"Here again laboratory experts are on the job—during tests a self-protecting motor was stalled on the line for 75 days without any harm whatever," he claims.

"In seeking the best motor for domestic applications, it is natural to consider the capacitor type motor. Capacitor motors have simple squirrel cage rotors, with the elimination of the troublesome commutators and brushes."

Power Factor Improved

"Power factor is improved to a degree impossible of attainment in commercial repulsion-induction motors. The resultant increase in efficiency means lower power bills. Starting and maximum torque values are at least equal to repulsion-induction motor values."

"Inherently, the pull-in torque obtainable in repulsion-induction motors is limited to approximately 85 per cent of the maximum torque of the motor, but in capacitor motors the pull-in torque can readily be made equal to the maximum torque."

To the refrigerator industry this means that a capacitor motor will pull up to speed and carry any load it can start and run, which is not always true of repulsion-induction motors, Bremer states.

Capacitors Not a 'Cure-All'

"It must not be assumed that capacitor motors are the 'cure all' or that they can be used to do any job where repulsion-induction motors have been used in the past. Certainly, however, they are suited to the domestic refrigerator drive, and have in the few short years since their introduction made good progress."

"Twenty-four out of 48 manufacturers listed in the October, 1932, issue of the REFRIGERATION DIRECTORY and MARKET DATA BOOK use capacitor motors, either exclusively or in part. There can be little doubt that 1933 will witness a further change in the same direction," he believes.

Filtrine Designs Cabinet Beer Cooler

BROOKLYN—Combining the features recommended for beer coolers by brewers, refrigeration manufacturers, and users, the Filtrine Mfg. Co., producer of storage water coolers, has introduced a new bar insert cabinet beer cooler, according to Charles F. Hansel, president of the Filtrine company.

Listed among those requirements which should be met by a beer cooler, according to Mr. Hansel's report of the survey's findings, are the following:

Requirements of Cooler

Equipment must be so constructed that it may be easily cleaned by live steam.

The unit must effect gradual reduction of beer temperatures to eliminate cloudiness in the beverage.

The apparatus must be of such a nature as not to cause beer-foaming, and consequent waste.

Reserve cooling effect must be provided to permit heavy or "peak" draught over short periods.

The unit must be so constructed and placed that ice may be used for cooling at times when the mechanical unit requires servicing.

Early Installations Important

Commenting upon the survey and its relationship to refrigeration sales, Mr. Hansel says, "Its findings show the necessity of handling this probable new outlet with the greatest care, so that early installations will not defeat their own ends."

"The success that meets the distributor who attempts to sell beer-cooling equipment will in great measure depend upon the satisfactory operation of his first few installations."

FEDDERS INTRODUCES 5 NEW EVAPORATORS

BUFFALO—A complete line of new 1933 dry expansion evaporators in 2-, 3-, 4-, 5-, and 6-tray sizes for domestic refrigerators has been announced by Fedders Mfg. Co.

"These new units have been developed to meet the demand for fast freezing evaporators at low cost," states W. D. Keefe, sales manager of Fedders refrigeration products.

"They are built entirely of copper with refrigerating tubes above and below each tray, so that each tray is a fast freezing tray," according to Mr. Keefe.

Metal-to-Metal Bond

"The copper tubes are bonded direct to the top and bottom of the copper tray sleeves, to provide the high conductivity of a metal-to-metal bond. Actually the refrigerant is separated from the trays only by the thickness of the tubes and tray sleeves."

This close proximity between trays and refrigerant is contrasted to previous types in which tubes are wound around the outside of the unit with trays resting on shelves in contact with the sleeve only at their outer edges, he points out.

"One continuous copper tube is used from inlet to outlet thus eliminating all possibility of oil pockets as the refrigerant is continually forced throughout the entire unit under suction pressure," Mr. Keefe explains.

Vertical Fin Surface

Generous vertical fin surface scientifically proportioned to the capacity of the unit assures low box temperatures and minimized defrosting, he claims. "The copper fin surface gets its area from its natural height rather than by adding excessive width to the complete evaporator."

The new Fedders units are equipped with Fedders automatic expansion valves providing a complete low side with a front shield and any standard assembly. They can easily be equipped make of temperature control. A tube is provided adjacent to the suction line for insertion of a thermostatic bulb.

Other features include slotted hangers for installation in the cabinet, Fedders' silver-satin exterior finish, and compactness.

Installation Man Asks . . . 'Why the Baffle?'

4301 W. 32nd St., Cleveland
Dec. 31, 1932.

Editor:

Which came first, the B.t.u. or the Baffle?

What would the B.t.u. do without the Baffle?

Like many others, the writer has made many commercial installations—through the brine tank period—the flooded fin tube coil—the brine tank with its flues—endeavoring to maintain temperatures. Trying this-that-and-the-other thing. Now we have come to the stage of the "Vertical Cross Fin Coil" and closer consideration of dehydration, circulation, etc., and the conflicting theories on baffles.

It is true—whether the subject be "a legal question" or one on "atmospheric condition," plausible reasons can be presented to prove both sides of the question; I hope we can decide on one theory for "baffles."

At present, one school will argue the coils should be partly above the top edge of the warm air baffle, and the other school will prove, the upper edge of evaporator coil fins should be below the warm air baffle.

There are experienced men who believe the cold air duct should be larger than the warm air duct, and we have equally experienced men claiming just the reverse.

These remarks are written on actual installations for the past 10 years, servicing them and getting good results, and knowing the value of hearing both sides of an argument.

My intention and hope is to open the subject of "baffle construction" so we may hear from ventilating engineers and others explaining their views on the question of "thermal kinetics," "air circulation," and the other conditions set up due to temperature differences.

The weather man with his high and low pressure areas, as well as the smoke stack engineer with his "stack conditions and temperatures, can help us in this baffling question of baffles. The smoke stack builder will prove he can cause greater velocity by increasing the outlet diameter of his stack. (As used in the Venturi system.) Naturally the gases are cooler at the top of any smoke stack than when entering at the base, so maybe the refrigeration engineer claiming that the cold air outlet should be larger than the warm air inlet is correct.

Some claim cold air is heavier than warm air—maybe it is if it contains the same amount of moisture. We know that considerable moisture is collected on the fins and while part of this moisture is again picked up by the cooled air, still plenty goes out through the drain pipe.

Warm air rises—cold air falls, of that we are of one mind. It seems

natural for us to accept the idea that "cold air is heavier and may be the motive force," but we are agreed that "cold" is a condition and "heat" is an energy that seeks the colder object. Perhaps if we can decide whether the warm or cold air in the refrigerator is the motive force that causes circulation, we may be able to arrive at a unanimous conclusion as to the construction of baffles, or the necessity for baffles.

A soda fountain using brine tank and thermo-siphon system would present a very definite argument and explanation of the thermal circulation taking place therein. And no doubt other pieces of equipment would do likewise in some other direction, so let us confine our reasoning to the refrigerating of an 8x8x10-ft. walk-in type of market refrigerator.

Why not do away with baffles entirely and just have the drip pan under the coils? Circulation will take place, with, I believe, a minimum of dehydration. Some will say it will cause "dew to form on ceiling" and others will prove "moulding of articles thus refrigerated," when both these conditions can be proved to be caused by other circumstances.

While having in mind the 8x8x10-ft. cooler above mentioned, it will be interesting and perhaps necessary to explain a thought in order to consider conditions found in many other types of storage and display cases, and even instances somewhat removed from refrigeration.

Was the baffle in the domestic refrigerator originally used for circulation, or just as a structural necessity? We are getting along O.K. without them in many domestic boxes even up to 8 cu. ft. Maybe we can thank Old Man Economy for that. But call to mind the large and small storage rooms of all temperatures, do they need baffles?

In the practical end of installation and service we have to deal with the facts and problems we find, therefore let's hear some explanations from a practical angle.

Now comes "turbulence" as a refrigerating asset, even after all these years of believing that "motion" is "heat." I am unable to disprove that turbulence is not set up with certain types of coils. If it is, can it be likened to the motion in the ether caused by electrical discharge that makes radio, etc. possible, rather than any wind?

But if turbulence will result in a reduced electric bill, improve the preservation of a good tenderloin steak, or hold this year's eggs for next year, we had better consider turbulence in baffle construction.

I would like to have the subject of baffles discussed in the News by some other engineers.

HAROLD HUNT.

BY JOHN T. SCHAEFER - -

Engineering news every week! The reader who follows the technical news regularly will be interested in the changes in *ELECTRIC REFRIGERATION NEWS*, beginning in 1933.

He will have noticed that the *News* is dressed up with some new headline type, and that reports in the paper are grouped according to subjects.

The new type is Gothic, readable and stylish. Cryptic headlines—"Companion Merchandise", "Engineering", "Patents", "Commercial Refrigeration", etc. announce the kind of specialized news to be found on the various pages.

Most important change to me is that of abandoning the bi-weekly *Engineering Section* so that engineering news can be printed every week. This will answer a question that was continually coming up among our editors: "Should we publish this piece of engineering news now, or wait for the *Engineering Section* next week?"

1933 Directory

Looming in the immediate future is the 1933 edition of the *REFRIGERATION DIRECTORY*. Following the *News*' policy of improved service to the industry, our editors are thinking seriously about the next *DIRECTORY*.

Any suggestions will be welcome from users of the 1932 *DIRECTORY*. How can the next one be made more useful? Were any important classifications omitted? Were any irrelevant classifications included? What re-arrangements will facilitate the user in finding desired information?

Independent Service Companies

We are full of questions today. Another one concerns independent service companies.

This group of business seems to be growing in number and importance. It is an industry growing up within an industry.

A valuable service to any industry is a directory of that industry. Hence the Jan. 25 issue of the *News* will carry a list of several hundred independent service companies.

The question is, what companies are in the service business and do not appear in our records? Please drop me a line if you are in the business, and have not been listed in previous directories. It will insure the appearance of your name in this list.

Air Conditioning And Business Rehabilitation

Belief that the growth of air conditioning as a new industry will contribute substantially to the improvement of general business has been expressed by economists, engineers, and business executives in diverse fields.

One of the most interesting statements along this line of thought was by WILLIS H. CARRIER, chairman of the board, Carrier Corp., and one of the highly respected authorities on air conditioning. He presented a conservative viewpoint, but one which definitely expects air conditioning for human comfort to be a factor in business rehabilitation (See Nov. 16 issue of the *News*).

A recent purchase order from Carrier Corp. reported by Warner & Swasey Co., machinery manufacturer, evidences Carrier's attitude toward putting men back to work. It read:

"We have one of your old turret lathes which must be replaced, but the present volume of our production will

only partially justify a new machine on an investment basis at this time. However, we believe that the National Rehabilitation Plan will put men to work if industry will support it with action.

"Our purchase order No. 12070 is therefore enclosed. It is a condition of this order that you will manufacture this machine or its equivalent in order to get men back to work."

The Divided Condenser

L. C. JONAS, service man in the Quaker City, has an idea for dividing the condenser of a household refrigerator, and cooling it by natural draft.

Frequently a refrigerator is installed in an alcove, or between large pieces of furniture, restricting air circulation so that running time of the machine is increased, he points out.

Jonas' idea is to use two condenser sections, one on each side of the cabinet just below the top, and protected by a sheet metal apron. High pressure gas from the compressor is fed from a T-joint in the back of the cabinet to each condenser section. The receiver is located high up on the back of the cabinet, just below the level of the condensers, and feeds the evaporator in the normal way.

Sufficient natural draft will be created along the sides of the cabinet to cool the condensers, he says. Chief advantages claimed are elimination of the fan, and reduced danger of smothering the condensers.

Automatic Defrosting

Among the innovations which are being introduced with 1933 models are automatic defrosters. Two large refrigerator manufacturers have already announced automatic defrosters, and more are expected. Control manufacturers have been working on such developments for some time, and judging from the patents granted, independent inventors are also giving considerable attention to the design of automatic defrosting devices.

A Texas inventor, working with R. A. PARKER of Houston, Tex., has evolved a novel scheme. He reasons that frost accumulation is proportional to the humidity in a cabinet and the number of times the door is opened. He has devised a method of gathering moisture as water, at the same rate as frost collects on the evaporator.

This moisture is then drained off into a small receptacle, which, when filled, trips a switch throwing off the motor. Later, this switch is thrown back "on" by a separate thermostatic control.

News Shorts

R. M. HYDE, selling refrigeration accessories for McCord Radiator & Mfg. Co., is showing the trade a new ice cube tray, fabricated of stainless steel. Frozen cubes are ejected from the tray by a simple flexing action.

D. H. CORLETTE, industrial sales manager of the Wood Conversion Co., manufacturer of Balsam Wool insulation, is finding a motion picture film effective in explaining the new process of forming Balsam Wool insulation in the plants of refrigerator manufacturers (described in the Dec. 28 issue of the *News*).

With C. M. LEE, Detroit representative of the company, he put on a private show for ELSTON HERRON, staff writer of the *News*, and myself. Later the same day, a number of Detroit refrigerating engineers viewed the film, following a session of the Detroit A.S.R.E.

St. Paul Firm Announces Refrigerated Body for Ice Cream Trucks

ST. PAUL—Designed for the transport of ice cream, a new electrically refrigerated truck body with a 275- to 325-gal. capacity has been announced by the Gregg Mfg. Co. here, according to J. W. Gregg, vice president.

The new body, exclusive of refrigeration equipment, weighs approximately 2,500 lbs. and is of proper size for use on a 1½-ton chassis having a 157-in. wheelbase. Kelvinator equipment is used in the body.

Condensing unit is located in a compartment at the front of the truck body, and in most instances is operated only at night to store refrigerating effect in the sub-zero dry-fin coils and copper-fin brine tanks located at the top of the body's interior.

When the body is to be used in heavy-duty work, the truck is equipped with a drive shaft take-off and Kelvinator constant speed regulator for operation of the unit while the truck is en route.

Body has rounded corners at front and rear. Its wall construction is of the staggered type. The exterior is of

auto-body steel sheets, and the refrigerated compartment is wood lined and has a galvanized steel pan and removable wood racks.

Compartment for empty cans, at the rear of the body is lined with galvanized sheets on the side walls and ceiling and has a galvanized pan on the floor with drains at each corner. The body is protected at the bottom by a banded rub rail.

Gregg's standard body has six inches of cork board in the floor, sealed with asphalt. The walls and roof are insulated by five inches of cork board. When applied, each sheet of cork is dipped in hot asphalt, and is separated from other sheets by a thickness of insulation paper. Dry-Zero insulation is available for the bodies.

In addition to the five inches of cork board used in the roof, kapok is packed in the space between the bows. The roof is covered with specially treated waterproof duck material.

Refrigerator compartment doors are of the bevel plug type and are 22 in. wide and 25 in. high.

Prof. Macintire Speaks On Air Conditioning

(Concluded from Page 1, Column 5)

standing, were compared both in physical and toxic qualifications, and the possibilities of using steam or air as refrigerants were discussed.

He then took up the various types of compressors—piston, rotary, centrifugal, and finally the steam jet—with comparative characteristics of each.

Turning then to the subject of air conditioning, Prof. Macintire outlined the fundamental laws of physics dealing with mixtures of gases and vapors, touching on the thermodynamics of such mixtures. He explained the use of suitable psychrometric charts for air conditioning problems, and worked out typical problems illustrating methods of computing refrigeration required and the amount of air to be circulated under certain conditions.

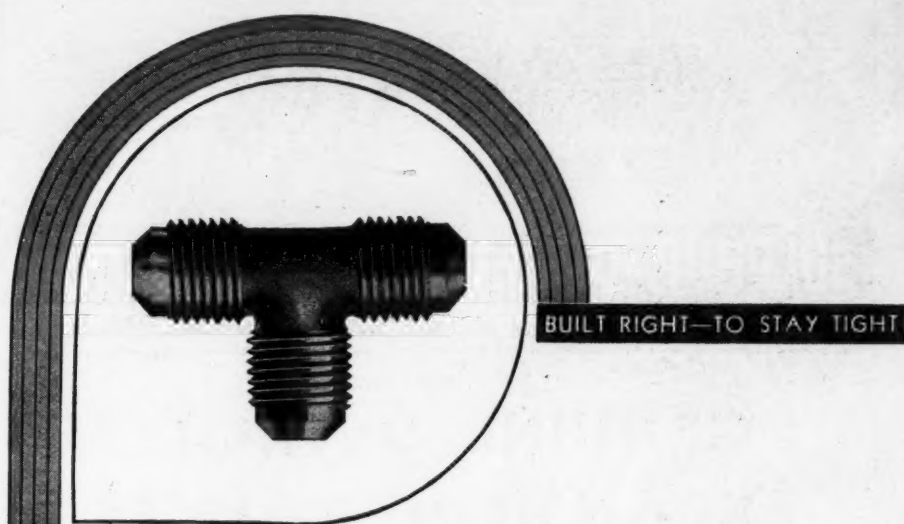
"Comfort Cooling" was the final part of the talk, particularly with the use of ice. Lantern slides were used to illustrate numerous points.

DISPLAY CASES USED IN NEW VERMONT MARKET

BURLINGTON, Vt.—When "Foodland" was opened here, shoppers found many silent salesmen in the form of refrigerated display cases.

A large stock of perishables is carried by this modern food mart and cases for displaying meats, vegetables, fruits, dairy products, and fish have been installed throughout the store.

A. R. Clemons, Kelvinator commercial refrigeration engineer, of the G. S. Blodgett Co., Burlington distributor, was called in to make a survey for designers of "Foodland." His recommendations resulted in an order for two Kelvinator compressors, models RB-120 and FB-141 and for two XO-90, two XO-91, two XO-40, an XO-92, XO-30, and an XO-131 cooling coils.



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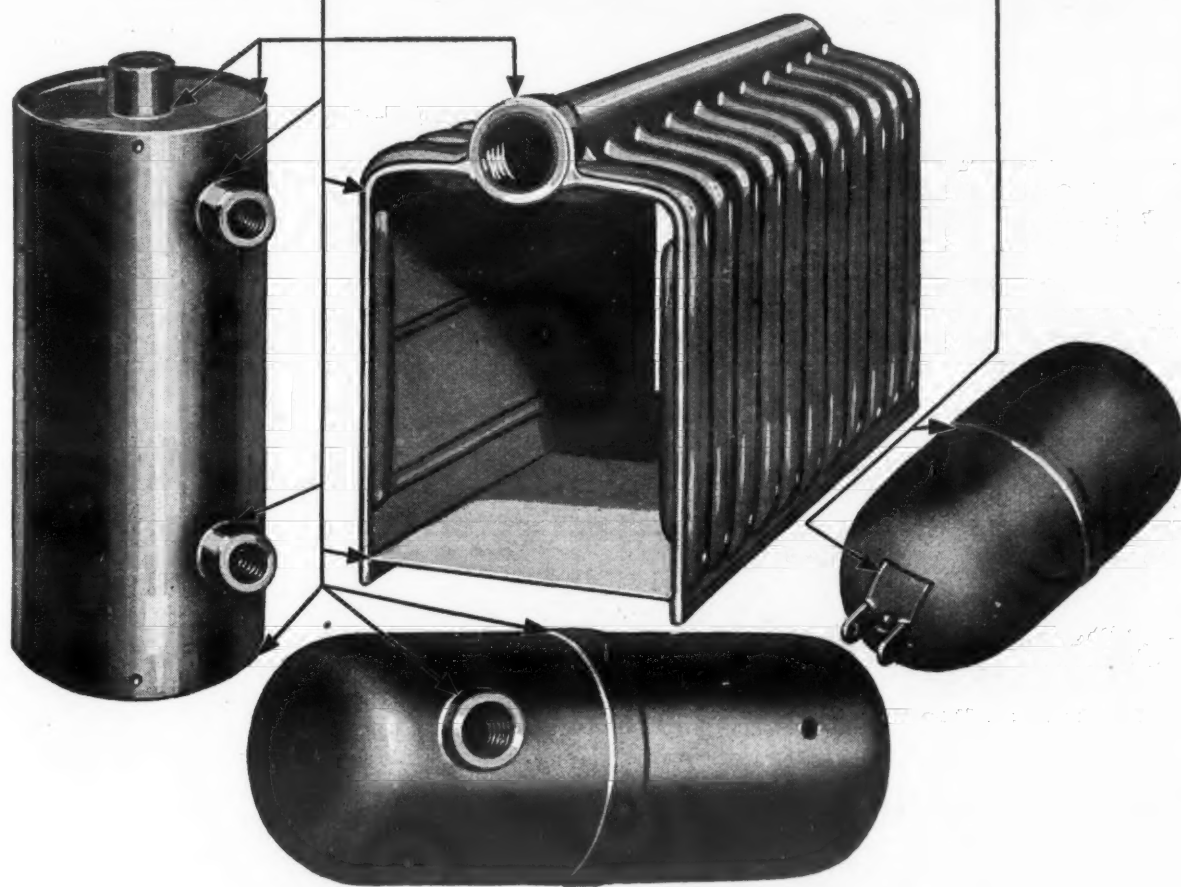
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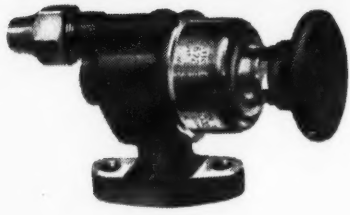
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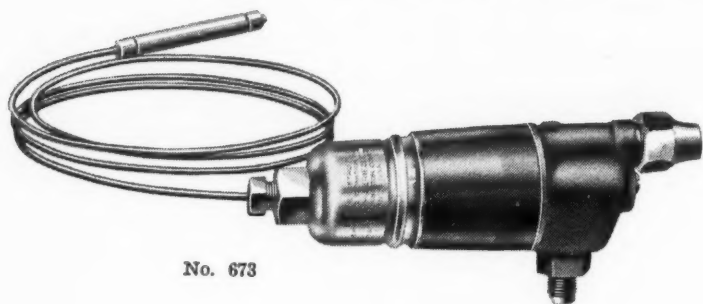
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"GENUINE DETROIT" EXPANSION VALVES

AUTOMATIC — THERMOSTATIC



No. 672



No. 673

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The No. 673 Thermostatic Expansion Valve is generally accepted as standard for commercial installations and apartment house multiple systems—Moisture proof throughout—Simple in operation.

« — »

Both of these valves may be used with any refrigerant not detrimental to brass.

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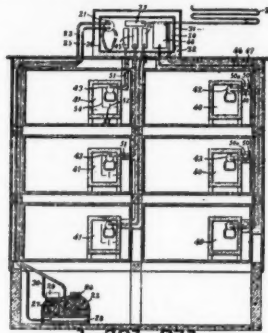
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PATENTS

ISSUED DECEMBER 20, 1932

1,891,231. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed May 30, 1929. Serial No. 367,163. 13 Claims. (Cl. 62-115.)

1. A refrigerating system including a heat transfer receptacle, a refrigerating apparatus for maintaining said receptacle



1,891,231

below a predetermined temperature limit, means for automatically placing said receptacle in thermal contact with the atmosphere when the temperature of the atmosphere falls below said predetermined limit, means enclosing a space to be refrigerated and a heat transfer system from said space to said receptacle.

1,891,232. REFRIGERATING APPARATUS. James R. Killen, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Feb. 19, 1930. Serial No. 429,788. 9 Claims. (Cl. 62-126.)

4. A horizontally elongated evaporator of a refrigerating system comprising in combination, a header adapted to contain liquid refrigerant, means within said header for preventing liquid from rising above a certain level, a second header spaced from said first mentioned header, a plurality of duct means connecting both of said headers, some of said plurality of duct means being disposed above the liquid refrigerant level and some other of said plurality of duct means being disposed below the liquid level, cross-over means between said headers and connected with all of said duct means extending between said headers.

1,891,249. REFRIGERATING APPARATUS. Otto M. Summers, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed March 31, 1930. Serial No. 440,501. 8 Claims. (Cl. 62-115.)

1. Refrigerating apparatus comprising in combination, a refrigerating chamber, refrigerant flow control means including means responsive to the condition within said chamber and a valve operatively associated therewith, a housing for said valve, a coupling for connecting said housing with a refrigerant circulating means, said housing having an opening through which said valve can be removed, a removable cover for said opening, and a shut off valve between said first valve and float chamber for preventing the escape of refrigerant from the chamber when the cover is removed.

1,891,305. PROCESS AND APPARATUS FOR REFRIGERATION. William A. Fossberry, Gloucester, Mass. Filed Jan. 7, 1930. Serial No. 419,081. 8 Claims. (Cl. 62-101.)

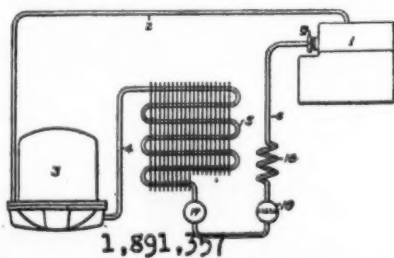
1. A refrigerating cabinet having a plurality of separate conduits formed therein, a plurality of flues positioned within said conduits, and means for closing any number of said conduits so as to circulate a cooling agent through the remainder of said conduits.

1,891,327. AIR CONDITIONING DEVICE. John H. Kitchen, Kansas City, Mo., and Francis A. Kitchen, Cleveland, Ohio, assignors to Mabel L. Kitchen, Kansas City, Mo., and Francis A. Kitchen, Cleveland, Ohio. Filed Aug. 3, 1931. Serial No. 554,746. 8 Claims. (Cl. 62-130.)

1. In an air conditioning device the combination with an ice receiving compartment, a separate spray compartment, an extended metal surface support for the ice, said surface partially immersed in a water reservoir in the ice compartment and means for circulating the water from the reservoir to the spray compartment.

1,891,357. REFRIGERATION. Frank D. Peltier, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed Sept. 27, 1930. Serial No. 484,745. 4 Claims. (Cl. 62-126.)

1. In a refrigerating system including a compressor unit, condenser, an evaporator, a conduit between said condenser and said



1,891,357

evaporator, a capillary tube in said conduit for controlling the volume of liquid refrigerant supplied to said conduit from the condenser, a loaded valve in said conduit operable responsive to the fluid pressure of the liquid refrigerant admitted by the capillary tube into said conduit.

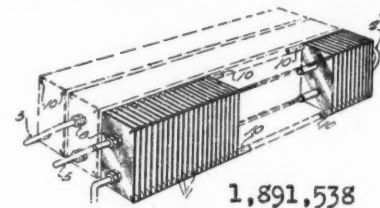
1,891,425. FREEZING APPARATUS. Alfred L. Kronquest, Syracuse, N. Y., assignor to Continental Can Co., Inc., New York, N. Y., a Corporation of New York. Filed Aug. 3, 1931. Serial No. 554,861. 4 Claims. (Cl. 257-23.)

2. A freezing apparatus comprising a

substantially closed chamber adapted to contain a liquid refrigerant, supporting and guiding rails for cylindrical containers located in the chamber, guide rails disposed above the containers and normally out of contact therewith, means for rolling the containers along said supporting and guiding rails while submerged in the liquid refrigerant, means for delivering the containers into the chamber and on to the supporting rails, and means for elevating and removing the containers from the chamber, the supporting and guiding rails for the containers having substantially horizontal supporting faces and guiding faces inclining away from each other for insuring that the containers will rest and roll on the end seams thereof.

1,891,538. EVAPORATOR. Frederick W. Hicks, Detroit, Mich., assignor to McCord Radiator & Mfg. Co., Detroit, Mich., a Corporation of Maine. Filed Dec. 26, 1931. Serial No. 583,332. 7 Claims. (Cl. 257-243.)

1. An evaporator of the character described, comprising a conduit, a multiplicity of relatively flat fin plates secured



1,891,538

to the conduit in spaced relation along the same, said plates extending outward from the conduit and being in a form having corners, said plates having a kerf or slot in each of the corners thereof, and flat strips secured to the plates in said slots for holding the outer edges of the plates properly spaced.

1,891,559. SALAD TABLE. Margaret Ryan, Portland, Ore. Filed March 24, 1928. Serial No. 264,544. 4 Claims. (Cl. 62-95.)

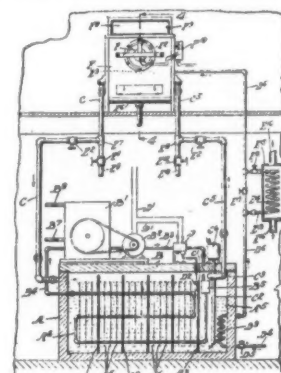
1. A cooling cabinet provided with a top made of insulating material, the upper face of which is formed to constitute a table, an enclosed continuous, air-filled cooling chamber arranged immediately beneath said top, a plurality of readily removable open-mouthed containers extending above, and depending from, said top, the mouths of said containers extending upwardly from said top and provided with removable covers, said containers being relatively thick-walled and having a substantial factor of heat retention to enable them, when removed from said depending position within said cooling chamber, to tend to prevent temperature fluctuation within said containers.

1,891,703. METHOD OF COATING. Helmer Bennington, Indianapolis, Ind., assignor to Aluminum Colors Inc., Indianapolis, Ind., a Corporation of Delaware. Filed May 27, 1932. Serial No. 613,997. 1 Claim. (Cl. 204-1.)

A process of anodically coating aluminum with an oxide coating which comprises making the aluminum an anode in an electrolytic cell, the electrolyte of which is a coating-forming solution and, during the coating process, maintaining all points at the aluminum anode surface-electrolyte interface at a substantially constant temperature.

1,891,713. AIR CONDITIONING SYSTEM. Wayne D. Jordan and Paul D. Van Vliet, Chicago, Ill., assignors to Air Control Systems, Inc., Chicago, Ill., a Corporation of Delaware. Filed April 16, 1932. Serial No. 605,593. 11 Claims. (Cl. 62-129.)

1. A refrigerating system comprising a storage tank, an air cooling element, means for circulating freezable liquid



1,891,713

through them, a refrigerant condenser unit, and means to freeze part of the liquid in the tank when the heat absorption capacity of the condenser unit exceeds the amount of heat transferred to the freezable liquid including an expansion member in the storage tank, and means for constraining the freezable liquid to flow along a predetermined path through the tank and in intimate contact with both the frozen liquid and such areas of the expansion member as are not encased in frozen liquid.

1,891,714. REFRIGERATING SYSTEM. Wayne D. Jordan and Paul D. Van Vliet, Chicago, Ill., assignors to Air Control Systems, Inc., Chicago, Ill., a Corporation of Delaware. Filed April 16, 1932. Serial No. 605,594. 8 Claims. (Cl. 62-141.)

7. The method of cooling a stream of freezable liquid for purposes of non-continuous refrigeration, which includes intermittently freezing a body of such liquid, directing a flow of such liquid in contact with the surface of said frozen body, and subjecting both the frozen body and the flowing liquid to the more nearly continuous action of an additional cooling medium, while guiding the flow of said liquid in contact with the frozen body in a predetermined path.

1,891,728. REFRIGERATOR UNIT. John

R. Replogle, Detroit, Mich., assignor, by mesne assignments, to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Original application filed June 6, 1921. Serial No. 475,344, and in Canada Feb. 11, 1922. Divided and this application filed May 12, 1927. Serial No. 190,769. 16 Claims. (Cl. 62-126.)

1. In refrigerating apparatus, the combination of a brineless flooded vaporizer comprising a header and a plurality of pipe loops depending therefrom; means for maintaining the liquid level in the vaporizer a height sufficient to substantially fill the pipe loops and the lower part of the header; trays for food, water or the like; and means carried by said pipe loops for supporting the said trays within the said loops.

ISSUED DECEMBER 27, 1932

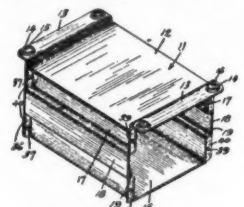
1,891,903. REFRIGERATED BED AND COUCH. Harold E. Bang, New York, N. Y. Filed May 25, 1931. Serial No. 539,792. 6 Claims. (Cl. 5-284.)

1. A refrigerated sleeping contrivance, comprising a frame having a head and foot portion, a spring structure supported between the head and foot portion, a refrigerator chamber located beneath the spring structure and having a portion extending upwards at the foot portion of the bed terminating in an opening directly above the spring structure, means for controlling the size of said frame and adapted to cool the refrigerator chamber.

1,891,905. REFRIGERATOR. John Beck, Ashland, Wis. Filed Sept. 1, 1928. Serial No. 303,401. 1 Claim. (Cl. 62-46.)

1,891,916. OZONIZER. Arthur W. Conley, Cleveland Heights, Ohio, assignor, by mesne assignments, to The Corozone Co., Wilmington, Del., a Corporation of Delaware. Filed Dec. 10, 1928. Serial No. 324,870. 9 Claims. (Cl. 204-32.)

1. An ozonizer comprising: a core having a plurality of spaced transversely extending legs; a transformer comprising a



1,891,916

primary coil disposed about one of said transverse legs, and a secondary coil disposed about another of said transverse legs; a flexible electrode sheet wrapped about said transformer secondary coil, flexibly conforming to the contour of said secondary coil and connected to one secondary terminal of said secondary coil, a second flexible electrode sheet wrapped about said secondary coil flexibly conforming to the contour of said secondary coil, connected to another secondary terminal of said secondary coil, and connected to a third leg of said core, and an insulating sheet interposed between said electrode sheets.

1,891,917. COOLING DEVICE FOR PHOTOGRAPHIC APPARATUS. Albert C. Denslow, New York, N. Y., assignor to Staten Island Shipbuilding Co., Staten Island, N. Y., a Corporation of New York. Filed March 5, 1928. Serial No. 344,335. 4 Claims. (Cl. 95-83.)

1. In a device of the character described, a developing tank, a plurality of chemical solution compartments adapted to receive a film for immersion therein, a cooling chamber disposed in each compartment, said chambers being communicably connected and means for circulating a refrigerant through said chambers.

1,892,026. AIR AGITATION FOR CAN ICE PLANTS. William E. Zieber, York, Pa., assignor to York Ice Machinery Corp., York, Pa., a Corporation of Delaware. Filed Nov. 8, 1930. Serial No. 494,400. 17 Claims. (Cl. 62-159.)

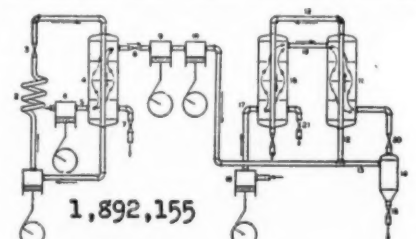
1,892,027. AIR AGITATION FOR CAN ICE PLANTS. William E. Zieber, York, Pa., assignor to York Ice Machinery Corp., York, Pa., a Corporation of Delaware. Filed Dec. 11, 1931. Serial No. 580,418. 10 Claims. (Cl. 62-159.)

1,892,081. APPARATUS FOR CONDITIONING AIR. Clinton F. Shadle, Indianapolis, Ind., assignor, by direct and mesne assignments, to Air Development Co., Inc., a Corporation of New York. Filed Feb. 1, 1929. Serial No. 336,871. 8 Claims. (Cl. 183-32.)

1. An apparatus of the character described, comprising a plurality of air conditioning units, each unit including a plurality of tubes extending therethrough, a refrigerating chamber surrounding said tubes, connections for passing a refrigerating medium through said chamber, means for forcing air under pressure through said tubes, and moisture separators, one associated with the discharge end of each tube.

1,892,155. PROCESS AND APPARATUS FOR LIQUEFYING AND RECTIFYING AIR OR OTHER GASEOUS MIXTURES. Isaac H. Levin, Pittsburgh, Pa. Filed July 31, 1930. Serial No. 472,020, and in France Aug. 3, 1929. 20 Claims. (Cl. 62-175.)

1. An apparatus for liquefying a gas comprising means for compressing a portion of the gas, means for compressing,



1,892,155

cooling and expanding a refrigerant, means to bring the cold expanded refrigerant into heat transfer contact with the compressed gas whereby the gas will be cooled and the refrigerant will be heated to room temperature, means to expand the cooled gas in an expansion valve

(Continued on Page 13, Column 1)

PATENTS

(Continued from Page 12, Column 5)

and/or expansion engine producing external work, means to employ the cooled gas as a refrigerant to cool by heat transfer contact another portion of compressed gas whereby the refrigerant will be heated to room temperature and the compressed gas will be cooled, means to expand and partially liquefy the gas.

1,892,224. APPARATUS FOR FREEZING CANNED GOODS. Daniel G. Sorber, El Monte, Calif. Filed Nov. 9, 1931. Serial No. 573,974. 7 Claims. (Cl. 62-101.)

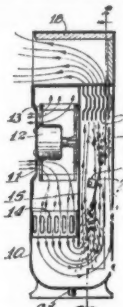
7. In an apparatus for freezing canned goods, a vertical cylindrical chamber having a refrigerant bath therein, a settling chamber in heat-interchanging relation with said first-named chamber, absorption coils within said settling chamber, means for circulating the refrigerant of the bath through said first-named chamber and said coils, means for continuously passing cans of goods through said first-named chamber, and means for expanding a compressed refrigerant and supplying the same to said settling chamber.

1,892,293. METHOD OF ATOMIZING LIQUIDS AND ABSORBING THE SAME BY GASES. Paul D. Van Vliet, River Forest, Ill., assignor to Air Control Systems, Inc., Chicago, Ill., a Corporation of Delaware. Filed April 18, 1932. Serial No. 605,919. 10 Claims. (Cl. 261-115.)

1. The method of mixing a liquid and a gas which consists in causing the formation of a relatively thin, continuous film of liquid wherein the liquid travels outwardly along radial lines from a center of dispersion causing the continuous discharge from substantially the entire edge of such film of separated and finely divided liquid particles, the film being substantially unbroken and unsupported, and exposing the film and the particles with a current of gas traveling in general parallelism with and on both sides of the plane of the film.

1,892,294. MEANS FOR ATOMIZING LIQUIDS AND IMPREGNATING GASES THEREWITH. Paul D. Van Vliet, River Forest, Ill., assignor to Air Control Systems, Inc., Chicago, Ill., a Corporation of Delaware. Filed April 18, 1932. Serial No. 605,920. 10 Claims. (Cl. 261-115.)

1. In a device for treating a gas, a treating chamber, atomizing means positioned in said chamber, and discharging



1,892,294

from a predetermined center a relatively flat thin film of liquid extending radially from said center, and means for maintaining through said chamber a flow of the gas to be treated in a direction in general parallelism with the plane of the film.

1,892,307. AIR CONDITIONING MECHANISM. Wayne D. Jordan, Evanston, Ill. Filed June 15, 1931. Serial No. 544,428. 18 Claims. (Cl. 257-138.)

17. In a mechanism for conditioning air, the combination of a casing containing substantially parallel passageways, a first one of said passageways having an air inlet opening at one of its ends and otherwise closed at said one end and open at its other end, a fan in said first passageway for moving air therein towards the other end thereof, atomizing means in a second of said passageways, said second passageway being open at each of its ends, a third of said passageways by-passing said atomizing means and open at each of its ends, the said other end of said first passageway being in open communication with one end of each of said second and said third passageway, a hood on said casing, the other end of each of said second and said third passageways opening into said hood, said hood having a discharge opening through one of its walls, whereby air delivered from said first passageway passes into said second and third passageways and is then mixed in said hood and delivered therefrom into the room containing said mechanism, and a heating element extending across the discharge end of said first passageway and also across the admission end of said third passageway.

1,892,346. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed March 31, 1928. Serial No. 266,286. 16 Claims. (Cl. 62-113.)

1. In a refrigerator, the combination with a receptacle containing a congealed substance, of means for releasing said substance from the receptacle when inverted, said means comprising a container adapted to contain a warm fluid, and adapted to receive said receptacle, and a valve actuated by the movement of the receptacle within the container and into contact with the valve for admitting warm fluid to said container.

1,892,407. REFRIGERATION SYSTEM. Ernest B. Miller, Baltimore, Md., assignor to The Silica Gel Corp., Baltimore, Md., a Corporation of Maryland. Filed Oct. 10, 1929. Serial No. 398,774. 18 Claims. (Cl. 62-118.)

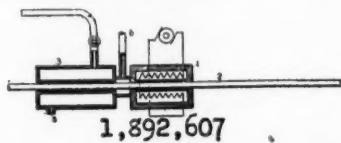
1. In a refrigeration system, in combination, a plurality of individual evaporator units, a plurality of adsorber units each complete with activating equipment, manifolded vapor lines from said evaporators to said adsorbers, a condenser connected to said adsorbers by a vapor line and to said evaporators by manifolded liquid lines, means to activate but one adsorber at a time and means to regulate the temperature of said evaporators

by control of the adsorber on activation dependent on pressure in said manifolded vapor lines.

1,892,531. ICE AND BRINE TANK FOR REFRIGERATOR CARS. Harry Henry McKee, Chicago, Ill., assignor, by mesne assignments, to Industrial Patents Corp., Chicago, Ill., a Corporation of Delaware. Filed Oct. 13, 1930. Serial No. 488,287. 3 Claims. (Cl. 220-1.)

1,892,607. METHOD FOR MAKING A TUBE. Harry W. Bundy, Detroit, Mich., assignor to Bundy Tubing Co., Detroit, Mich., a Corporation of Michigan. Filed Jan. 31, 1931. Serial No. 512,673, and in Sweden Oct. 27, 1930. 10 Claims. (Cl. 113-33.)

2. The method of making a tube which consists in electroplating a layer of copper on both sides of a steel strip, forming the



1,892,607

strip into a tube, passing the tube through a heating zone at a substantially uniform rate and in a non-oxidizing environment and at a temperature high enough to alloy the copper with the steel and weld the seams of the tube, coordinating the speed of movement of the tube with the period of application of effective welding temperature to the tube to alloy the copper coating with the steel over both sides of the strip and to weld the overlapping portions of the strip together, the copper supplying material for the weld and being sufficient in amount to leave a substantially uniform coating on the surface of the finished tube, proportioning the period of treatment to the temperature to prevent running of the coating on the tube, and cooling the tube in a non-oxidizing environment whereby a welded and uniformly coated tube substantially free from deleterious oxides is produced by a single heat operation.

EVIDENCE GIVEN IN DU PONT PATENT SUIT

NEW YORK CITY—The case of E. I. du Pont de Nemours vs. Jones-Dabney Co., second of the infringement suits brought by du Pont against lacquer manufacturers who have not accepted du Pont's licensing agreement under the Flaherty patent for low viscosity nitrocellulose lacquers, was tried before Judge John P. Nields of the U. S. District Court in Wilmington, Del., from Dec. 12 to Dec. 23, 1932.

As reported in the Dec. 28 issue of ELECTRIC REFRIGERATION NEWS, the first suit (brought by du Pont against the Glidden Co.) was decided in favor of the defendant, when Judge Marcus B. Campbell of the U. S. District Court of Eastern New York, Brooklyn, ruled the Flaherty patent invalid on the grounds of anticipation by other inventors.

Purpose of the du Pont licensing arrangement is to bring about stabilization of the lacquer industry by permitting licensed manufacturers to make lacquer under the Flaherty patent. Some 35 (50 including subsidiaries) companies signed licenses, paying du Pont a royalty of 4 cents per gallon.

Opposing the licensing plan were a number of lacquer makers who contributed to a trust fund for use in defending suits brought by du Pont against non-licensed manufacturers. This fund was used in defense of the Glidden suit, and is supporting the Jones-Dabney defense.

Plaintiff du Pont's brief is due Jan. 30, defendant Jones-Dabney's brief is due Feb. 28, and reply briefs before March 13. Oral argument is set for March 16, and a decision should be reached before summer, according to Singmaster & Breyer, consulting engineers who are leading the defense.

When the Glidden decision was received, du Pont lawyers suggested that the Jones-Dabney case be postponed until Judge Campbell's decision could be appealed and a ruling of the Circuit Court obtained. Jones-Dabney was unwilling to accept this proposal.

When trial of the Jones-Dabney suit opened in Wilmington, Del., du Pont moved to dismiss the case without prejudice, on payment of costs. Following considerable argument on this question by the lawyers, Judge Nields proceeded with the trial.

SWOPE SEES NEED FOR EMPLOYMENT ASSURANCE

BOSTON—"Employment assurance is needed more than employment insurance in industry today," stated Gerard Swope, president of the General Electric Co. in a recent interview.

"Falling adequate assurance, however, insurance is important in the present situation," he said. "Employers and employees alike must contribute to this insurance, for only in this way will it be possible for the workers to have any interest in it. What is merely given to a person does not have any value."

"These ideas of employment assurance and insurance have come from a general awakening of the engineering profession to its responsibilities to society," said Swope. "The engineer who creates the mechanistic age has some very definite social obligations, and he is coming to realize them."

Former Westinghouse President Dies

NEW YORK CITY—Edwin M. Herr, former president of Westinghouse Electric & Mfg. Co., died Dec. 24 at his home here. He was 72 years old.

At the time of his death, Mr. Herr was vice chairman of the board of directors of Westinghouse Electric & Mfg. Co.; a director of the American Manufacturers Export Association; a director of the Radio Corp. of America; a director of the Westinghouse

Airbrake Co. and many other organizations.

He was president of the Westinghouse Electric & Mfg. Co. from 1911 until 1929.

He relinquished the presidency of the company in 1929.

PATENTS

Searches, Reports, Opinions by a Specialist in REFRIGERATION

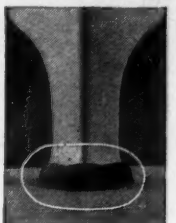
H. R. VAN DEVENTER

Solicitor of Patents - Refrigeration Engineer

342 MADISON AVE. NEW YORK

Universal Tru-Fit Gliders..

... provide quick, lasting protection to linoleum and floor. Indispensable for accurate leveling. Entirely of rubber with embossed soft rubber shield which adds deft touch of smartness. Can be used on any make refrigerator. Send for samples and prices.



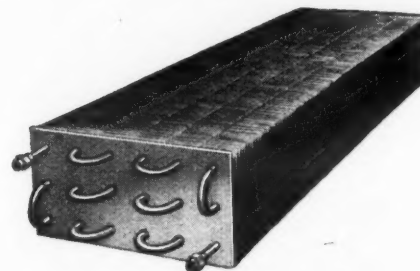
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• WILL FIT EVERY REFRIGERATION APPLICATION •



- I Can be shipped promptly in any length required to properly fit bunker space.
- I Fins can be spaced $\frac{3}{4}$ - $\frac{1}{2}$ - $\frac{1}{3}$ - $\frac{1}{4}$ inch apart according to the total surface desired or type of work to be done.
- I Tubing can be $\frac{1}{2}$ - $\frac{5}{8}$ - $\frac{3}{4}$ or 1 inch depending on the refrigerant used or the application.
- I Various size fins are available for installations where coil space is limited.

All Bush Coils are sold at standard prices per square foot which means you can order exactly the amount of surface you need for any job and with the assurance of prompt shipment.

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DISTRIBUTION FRANCHISE AVAILABLE IN SOME TERRITORIES

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INVESTIGATE THE BRUNNER 1933 LINE
HIGH SIDES AND COMPRESSORS
COMMERCIAL AND DOMESTIC MODELS
NEW PRICES!

BRUNNER

REFRIGERATION DIVISION

BRUNNER MANUFACTURING CO. » UTICA, N.Y.

STATISTICS

21,029 Household Refrigerators Sold In November, 1932, by 10 Nema Companies as Compared with 27,294 in October

Reported by Refrigeration Division of National Electrical Manufacturers Association. Member companies: Copeland, Crosley, Frigidaire, General Electric, Gibson, Grigsby-Granow, Kelvinator, Norge, Servel, Trupar, Universal Cooler, and Westinghouse. Statistics for Crosley and Gibson not included.

As Billed to Distributors and Dealers, Including Exports

Lowest Priced Cabinets Net Food Space	Systems Included		Cabinets Only	
	Quantity	Dollars	Quantity	Dollars
1. Under 4.00 cu. ft.	127	7,453.23	8	184.00
2. 4 to 4.99 cu. ft.	6,487	412,569.44	248	6,166.00
3. 5 to 5.99 cu. ft.	1,681	133,317.01	133	4,098.00
4. 6 to 6.99 cu. ft.	2,685	235,698.75	33	1,103.00
5. 7 to 7.99 cu. ft.	945	107,935.86	1	40.00
6. 8 to 9.99 cu. ft.	238	31,899.50	1	97.00
7. 10 to 12.99 cu. ft.	87	17,934.38	1	132.00
8. 13 to 16.99 cu. ft.	58	12,562.00	...	...
9. 17 to 24.00 cu. ft.	8	2,233.00	...	...
10. Totals if Cabinets only	...	...	425	11,820.00
11. Totals if Systems included	12,316	961,693.17	...	...

HOUSEHOLD		Quantity	Dollars
61. Total (cabinets only)	...	529	20,856.00
62. Total (systems only)	...	18,492	1,638,464.74
63. Separate Household Systems	...	1,480	115,709.00
64. Separate Household Low Sides	...	1,057	19,057.00
65. Total Items 62, 63 and 64	...	21,029	...
66. High Sides, 1/2-hp. and Less	...	1,609	65,457.55
67. Parts and Miscellaneous (household)	...	...	4,475.00
68. Total of 61, 62, 63, 64, 66 and 67	...	...	1,864,019.29

COMMERCIAL		Quantity	Dollars
71. Water Coolers with High Sides	...	332	39,519.00
72. Water Coolers with No High Sides	...	90	4,781.00
73. Ice Cream Cabinets with High Sides	...	70	9,174.00
74. Ice Cream Cabinets with No High Sides	...	121	13,994.00
75. Milk Coolers with No High Sides	...	2	194.00
76. Room Coolers with No High Sides	...	15	1,440.00
77. Counters and Commercial Boxes	...	17	6,638.00
78. Extra Low Sides (commercial)	...	3,207	110,999.96
80. Extra High Sides 1/3-hp. and up	...	2,159	239,752.31
81. Parts and Miscellaneous (commercial)	...	...	15,020.41
82. Total 71 to 76 inclusive and 79	...	3,837	...
83. Total Items 65 and 82	...	24,866	...
84. Total Commercial (71 to 81 inclusive)	441,512.68
85. Total Dollars (68 and 84)	2,305,531.97



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ROLLATOR REFRIGERATOR

BAKELITE MOLDED PARTS FOR ELECTRIC REFRIGERATORS

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FIT ANY SIZE REFRIGERATOR

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Atlanta St. Louis Dallas
Minneapolis Brooklyn New Orleans Kansas City, Kan.

Nema Stocks—November 30, 1932

Systems Included				Cabinets Only			
Factory, Branch and Warehouse		Distributors and Dealers		Factory, Branch and Warehouse		Distributors and Dealers	
Quantity	Dollars	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
1. 1,950	115,642.66	1,392	81,900.85	923	26,003.00	6	113.00
2. 15,058	985,565.50	6,177	414,729.91	7,392	143,216.60	28	695.00
3. 8,573	683,982.39	4,673	382,771.61	4,304	151,017.20	33	811.00
4. 6,120	523,724.50	2,614	228,495.75	3,935	91,211.00	...	...
5. 8,537	866,386.84	3,562	362,568.81	9,078	403,522.00	6	448.00
6. 136	18,654.00	618	84,692.00	411	25,593.00	3	185.00
7. 771	161,458.62	758	155,610.76	1	95.00	2	190.00
8. 925	195,177.00	143	30,160.00	58	5,936.00	1	112.00
9. 987	288,522.00	187	53,023.00	131	18,023.00	8	1,414.00
10. ...	...	...	...	26,233	864,616.80	87	3,968.00
11. 43,057	3,839,113.51	20,124	1,793,952.69	...	...	...	...
21. 711	60,156.00	379	31,897.00	12	254.00	1	21.00
22. 16,297	1,454,708.50	10,772	954,421.00	328	11,955.20	...	...
23. 3,750	388,979.65	2,883	308,538.00	1,139	54,433.40	3	125.00
24. 28,378	3,503,079.12	11,246	1,372,462.60	1,852	71,898.00	1	53.00
25. 377	54,055.00	102	14,033.00	328	26,207.00	...	...
26. 4,310	746,839.00	2,514	422,319.00	435	36,036.00	...	...
27. 3,383	775,815.50	922	209,451.50	621	54,377.00	...	...
28. 2,037	513,733.00	194	50,468.00	26	3,264.00	...	...
29. 465	165,962.00	138	50,467.00	256	45,405.00	111	18,931.00
30. ...	...	...	...	4,997	303,839.00	116	19,130.00
31. 59,708	7,663,327.77	29,156	3,414,057.10	...	...	...	...
41. ...	...	...	...	...	...	...	...
42. 222	23,362.00	...	...	393	15,327.00	...	...
43. 296	36,435.00	27	3,324.00	...	...	...	...
44. 2	358.00	...	...	...	...	...	...
45. 15	2,476.00	21	3,942.00	...	...	...	...
46. 6	1,369.00	44	11,400.00	...	...	...	...
47. ...	...	...	...	...	...	...	...
48. ...	...	...	...	...	...	...	...
49. ...	...	...	...	...	...	...	...
50. ...	...	...	...	393	15,327.00	...	...
51. 541	64,000.00	92	18,666.00	...	...	...	...

HOUSEHOLD

61. Total (cabinets only)	...
62. Total (systems only)	...
63. Separate Household Systems	...
64. Separate Household Low Sides	...
65. Total Items 62, 63 and 64	...
66. High Sides, 1/2-hp. and Less	...
67. Parts and Miscellaneous (household)	...
68. Total of 61, 62, 63, 64, 66 and 67	...

COMMERCIAL

71. Water Coolers with High Sides	...
72. Water Coolers with No High Sides	...
73. Ice Cream Cabinets with High Sides	...
74. Ice Cream Cabinets with No High Sides	...
75. Milk Coolers with No High Sides	...
76. Room Coolers with No High Sides	...
77. Counters and Commercial Boxes	...
78. Extra Low Sides (commercial)	...
80. Extra High Sides 1/3-hp. and up	...
81. Parts and Miscellaneous (commercial)	...
82. Total 71 to 76 inclusive and 79	...
83. Total Items 65 and 82	...
84. Total Commercial (71 to 81 inclusive)	...
85. Total Dollars (68 and 84)	...

Line 85 prorated to correspond with total sales of 10 companies \$19,211,657.00 \$9,349,931.00
No. of Mfrs. reporting on Line 85, their % of total sales: 9 Mfrs.—97.18%, 6 Mfrs.—69.71%.
*Shows number of manufacturers reporting on items above line 85 in these double columns; also the % of total sales for the month made by these companies.

Nema Distribution By States

STATES and Territories	Quantity of HOUSEHOLD Low Sides
Connecticut	288
Maine	57
Massachusetts	588
New Hampshire	31
Rhode Island	87
Vermont	25
New England Total	1,076
Delaware	80
Maryland and D. C.	732
New Jersey	1,578
New York	6,388
Pennsylvania	1,553
Eastern Total	10,331
Kentucky	129
Ohio	733
West Virginia	119
East Central Total	981
Alabama	44
Florida	266
Georgia	49
North Carolina	93
South Carolina	31
Tennessee	76
Virginia	213
Southeastern Total	772
Illinois	635
Indiana	218
Michigan	431
Wisconsin	249
Great Lakes Total	1,533
Minnesota	284
North Dakota	14
South Dakota	8
North Central Total	306
Iowa	145
Kansas	66
Missouri	795
Nebraska	99
Middle West Total	1,105
Arizona	3
California	783
Nevada	29
Pacific Coast Total	815
Idaho	32
Montana	6
Oregon	130
Utah	9
Washington	62
Northwestern Total	269
Colorado	36
New Mexico	10
Wyoming	9
Rocky Mountain Total	55
Arkansas	15
Louisiana	39
Mississippi	14
Oklahoma	45
Texas	167
Southwestern Total	280
Total United States	17,523
Total Canada	134
Other Foreign (including U. S. Possessions)	3,340
Total for World	20,997

CORTELYOU REPORT ON POWER INDUSTRY

By George B. Cortelyou, President, National Electric Light Association and President, Consolidated Gas Co.

NEW YORK CITY—For 1932, the total generation of electricity is estimated at 78,000,000,000 kwh., as compared with a total generation of 85,575,000,000 kwh. for the previous year, a decrease of 9 per cent.

Total sales of electric current for residential purposes showed a gain of 3 per cent for 1932 as compared with 1931. Consumption of electricity for commercial lighting (retail) purposes showed a decrease of 4 per cent; current for traction purposes, a decrease of 9 per cent; and the use of industrial (wholesale) power, a decrease of 18 per cent from 1931.

Revenues Decrease 7 Per Cent

Total revenues from consumers of electricity are estimated at \$1,840,000,000 for 1932, a decrease of about \$135,000,000 or 7 per cent from the preceding year.

A further decline of 3 per cent took place in 1932 in the average price of electricity for domestic use, or from 5.78 cents per kwh. to 5.60 cents per kwh. At the same time, utilization of electricity by the average domestic consumer grew by 3 per cent, or from 584 kwh. at the end of 1931 to 600 kwh. at the end of 1932. Thus, the net result was to give the consumer more service for the same amount of money. The total number of domestic customers decreased during the year by 250,000, a decrease of 1 1/4 per cent.

Reduction in Taxes

With the falling off in gross revenues, there has not been a corresponding reduction in taxes, and it is estimated that taxes for 1932 will represent 11 per cent of gross revenues as compared with 10.7 per cent in 1931.

Several long-range power projects were carried through to completion in 1932. This resulted in bringing into service nearly 1,000,000 hp. of additional generating equipment. Of this new capacity, 150,000 hp. is hydro-electric plant and 850,000 hp. is steam plant. This increase brings the total capacity in the electric light and power industry to approximately 46,400,000 hp.

Prominent among these installations were 320,000 kw. (430,000 hp.) in steam turbine equipment by the Brooklyn Edison Co., bringing the capacity of its Hudson Ave. power house to more than 1,000,000 hp. and making it the largest power plant in the world, steam or hydro-electric.

Large Steam Installation

In the Middle West, a steam power installation with a capacity of 67,000 hp. was completed by the Public Service Co. of Indiana, and a 13,000 hp. hydro plant was built by the Central Power and Light Co. of Texas.

New developments were made in the field of mercury turbines. In New Jersey, the Public Service Electric & Gas Co. began the construction of a plant with a turbo-generator to produce 20,000 kw. by means of mercury, and also to make steam which will generate 35,000 additional kw. in the usual steam turbine.

At Schenectady, N. Y., the General Electric Co. commenced the installation of the first outdoor steam plant. This plant also employs mercury. The electric output of the plant will be sold to the local electric utility while the steam produced will be used by the General Electric Co. for industrial purposes.

Two Big Interconnections

Further extensions of transmission lines were made during the year and two notable interconnections were undertaken. The first of these will tie the combined hydro-electric and steam power network of "Upstate" New York with the steam plants of New York City. The second links together the hydro-electric stations of the middle Susquehanna river with the steam plant at Washington, D. C.

From the foregoing statement, it is apparent that the electrical industry is bearing its burdens resulting from the economic situation. Because such a large percentage of industry is electrified, the depressed condition of general business reacts upon the electrical industry and the course it will take during the year 1933 will follow closely that of business generally.

RECEPTIONIST SELLS THREE GENERAL ELECTRICS

PATCHOGUE, L. I.—Miss Anne Ziegner, receptionist at the Floral Park display room of Alfred L. Hart, General Electric refrigerator dealer here, recently sold three refrigerators in one week without leaving the display room.

Miss Ziegner, who is quite attractive, employed the Monitor Bank in making all of the sales. Visitors who came into the store were first shown the refrigerator, and then Miss Ziegner explained how the machine could be purchased by using the bank.

APEX ANNOUNCES NEW DEALER APPOINTMENTS

CLEVELAND—Several new dealers have been added to the field organization of Apex-Rotarex Corp., according to C. G. Frantz, president and general manager.

In Toledo, J. W. Green Co., music house, has taken on the complete line of Apex appliances and has created an outside retail selling force. C. Ludwig Baumann Co., a furniture chain in New York, operating establishments in Brooklyn, Jamaica, Long Island, and the Bronx, recently added an Apex washing machine department.

In Milwaukee, the Midwest Radio Co. is now an Apex dealer, concentrating on cleaner and washer sales. J. Baker Furniture Co. of New York City has recently received an Apex franchise and is likewise starting out with washer and cleaner sales. Geo. L. Hirtzel Co., Elizabeth, N. J., music dealer, has joined the ranks of Apex dealers and is now displaying the complete line of Apex washers and ironers. The new appliance department is under the supervision of J. J. Long and J. Wolverton.

In Washington, D. C., seven dealers who have been added are: Palais Royal, National Furniture Co., Hub Furniture Co., Dulin & Martin, Altman Furniture Co., W. A. Bryant Co., and Apex Radio & Electric Co.

From L. A. Dexter, Apex district manager in Maryland, comes the news that the Four Besche Bros. of Baltimore have become an Apex dealer. In Cincinnati, the John Van Range Co. has been appointed.

ALLEN-INGRAHAM NAMES SEVEN NEW DEALERS

ALBANY, N. Y.—Seven new Westinghouse dealers were appointed recently by the local branch store of Allen-Ingraham, Inc., Westinghouse distributor of New York City.

Donald Blakeslee, Inc., Poughkeepsie, N. Y.; C. M. Fort & Sons, Mechanicville, N. Y.; Glen Ridge Motor Co., Glens Falls, N. Y.; H. A. Hoffman, Ravena, N. Y.; G. Parllman, Wallkill, N. Y.; Sacandaga Electric Supply Co., Sacandaga, N. Y.; and Rite-Way Roofing Co., Gloversville, N. Y., are the new dealers.

BUYER'S GUIDE

Manufacturers Specializing in Service
to the Refrigeration Industry



The PEERLESS THERMAL EXPANSION VALVE

(Pat. No. 1870090, Others Pending)

For use with Methyl Chloride
and Sulphur Dioxide

The perfect thermostatic valve. The control always resides in the bulb due to the patented Peerless warming method. The PEERLESS will eliminate your expansion valve troubles.

List Price, \$13.50. Write for bulletin.

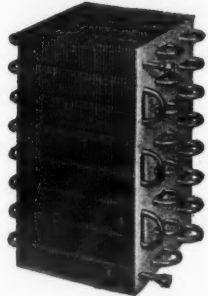
PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.

A NEW FIN COIL by PEERLESS

Wedge-locked and edge-locked aluminum fins on tinned copper tubing for methyl chloride, sulphur dioxide, F-12, etc.—aluminum tubing for ammonia. Absolute Metal to Metal Contact.

A Superior Coil in which Soldered Return Bends have been eliminated.

Priced to meet 1932 conditions.
Write—Wire for Catalog.



PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.



Completely assembled and individually bagged. Ready for shipment in your refrigerator. Write for complete list of standard sizes and prices.

Hoosier Standardized Parts
HOOSIER LAMP & STAMPING COMPANY, EVANSVILLE, IND.

REFRIGERATION SUPPLIES

We carry a complete stock of

EVERYTHING IN REFRIGERATION

including

U. S. Pressure & Compound Gauges.

Save time, work and expense by buying everything from one source



MELCHIOR, ARMSTRONG, DESSAU CO.

116 Broad St., New York

1135 Callowhill St., Philadelphia

Do You Want Something Else to Sell?

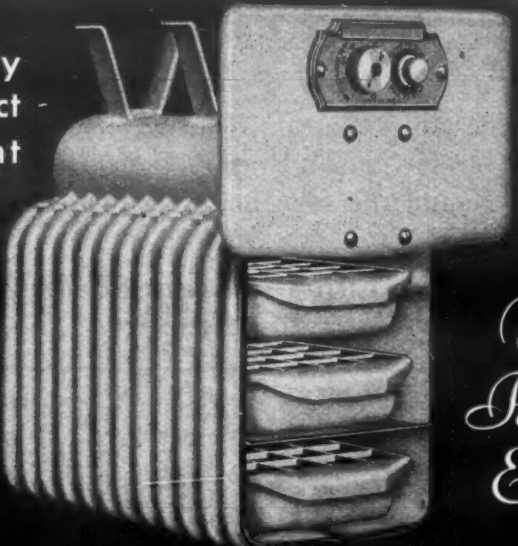
Home owners are increasingly conscious of the advantages of clean, fresh air in kitchen, bath and other rooms of the house. There is a big market for MOTOVENT, the electric home ventilator. Fits any window—easy to install—beautiful in appearance.

Models to retail at 29.50 to 49.50. Attractive margins to distributors and dealers. Write for full details.

MOTOVENT
FRED K. N. ROSS, Inc. 1010 Beaubien St., Detroit

The MULLINS SHEET METAL EVAPORATOR

Sanitary
Compact
Efficient



White
Porcelain
Enamel

DESIGNS FOR USE WITH HIGH SIDE AND LOW SIDE FLOATS—IMPROVED FAST FREEZING SHELF AT SLIGHTLY INCREASED COST.

Manufacturers: Write for Details!

MULLINS MANUFACTURING CORPORATION
REFRIGERATION DIVISION
SALEM, OHIO

QUESTIONS

Address

Query No. 1031—"Will you please give me the address at which I can reach Duane Wanamaker, advertising manager of the new Grunow Co.?"
Answer—4127 George St., Chicago.

Units for Old Ice Boxes

Query No. 1032 (Tennessee)—"I am an architect of long practice, having built some of the larger and more important buildings in this city. Due to the depression, I have closed my office, and have been selling the Iron Fireman."

"It has occurred to me that there may be a demand for the installation of electric refrigerating units in old or existing ice boxes. I am well equipped to handle this kind of business, being in position to put on a sales force to canvass the city, providing I can find a unit that adapts itself to existing boxes without much change and without too much expense."

"Will you be kind enough to advise me where I can secure such a unit at the lowest price. If you do not care to recommend any particular make, you may send me several firms."

Answer—The practice of installing electric units in ice boxes is not as common today as it was a few years ago, for two reasons. First, the cost of complete electric refrigerators with cabinet and machine has been steadily reduced, so that it is now frequently more economical for a housewife to purchase a new refrigerator than to have an old ice box rebuilt. The other reason is that comparatively few existing ice boxes have enough insulation or sufficiently good construction to warrant the purchase of an electric system.

However, some installers still equip ice boxes with electric machines when the cabinets are in good condition. For a list of companies manufacturing electric refrigerating systems suitable for this type of work we refer you to page 231 of the REFRIGERATION DIRECTORY and MARKET DATA BOOK.

Low-Temperature Testing Equipment

Query No. 1034 (Manufacturer, Pennsylvania)—"We are considering the development of apparatus to produce a temperature of -40° F. for testing instruments of our manufacture. Please put us in touch with manufacturers of such equipment who will be able to bid on our requirements."

Answer—Since equipment of this type must be specially designed and built to order, nothing of a standard design is on the market.

The following refrigeration manufacturers have furnished special low-temperature testing apparatus for certain requirements: American Engineering Co., 2420 Aramingo Ave., Philadelphia; Brunswick-Kroeschell division of Carrier Corp., 850 Frelinghuysen Ave., Newark; Copeland Products, Inc., Mt. Clemens, Mich.; Frigidaire Corp., Dayton; General Electric Co., Electric Refrigeration Dept., Hanna Bldg., Cleveland; Kelvinator Corp., Detroit; and Universal Cooler Corp., 7424 Melville Ave., Detroit.

Piston Ring Manufacturer

Query No. 1036 (Service company, Kansas)—"I would like to get some information regarding a firm formerly known as the Illinois Piston Ring Co., 57 East 24th St., Chicago. This company either made or sold the double seal piston ring."

"We addressed the company at the above address, but the letter was returned. Please advise who the successor is."

Answer—Our records show Illinois Piston & Ring Co. is now located in Ft. Worth, Tex.

Two-Temperature Valves

Query No. 1037 (Dealer, Cuba)—"We will appreciate your giving us the names of manufacturers making two-temperature regulating valves for use with Kelvinator equipment."

Answer—Communicate with Kelvinator Corp., Detroit; Barostat Co., 141 Milk St., Boston (maker of Kelvinator two-temperature valves); Kerotest Mfg. Co., 2525 Liberty Ave., Pittsburgh; or Mueller Brass Co., Port Huron, Mich.

Air-Conditioning Data

Query No. 1038 (Manufacturer, Connecticut)—"In the Engineering Section of ELECTRIC REFRIGERATION NEWS, Oct. 19, 1932, you show a tabulation of 10 installations of air-conditioning equipment in commercial buildings."

"We would like to have a list of these installations, so that we may get further information as to how great they consider the value of air conditioning in relation to the effects upon occupants of the buildings, particularly during the summer."

"If you know of some particular installation where a considerable amount of clerical work has been performed in determining the benefits of air conditioning on the office force, we would like to know of it. From general information on this subject, we judge

there is no question but what an office force in a bookkeeping or auditing department would operate at a decided advantage when air conditioning is provided for comfort cooling."

Answer—No further information is available on the article to which you refer because the information was collected in a survey by the National Electric Light Association, which agreed, in collecting the data, not to disclose the names and locations of the various installations.

We have not heard of any systematic collection of information on the beneficial effects of specific installations. This would indeed be interesting data, and editors of the News will appreciate advice of any existing data on the subject.

CATALOGS

Goodrich "V" Belts

A new four-page insert, for its mechanical goods catalog has been issued on its Longlife "V" belts designed for fractional horsepower by the B. F. Goodrich Rubber Co., Akron, Ohio. The insert describes two types of V-belt construction, and lists inside circumference, top width, angle, thickness, minimum order, and type of construction on each size.

Vilter Commercial Machines

Vilter Mfg. Co., Milwaukee, has published a bulletin, No. 47, describing Vilter commercial refrigerating machines of the rotary type. Illustrations showing the disassembled parts of the compressor, a typical air-cooled unit, and a typical water-cooled unit, etc., are contained in the bulletin as well as a description of the construction, auxiliary equipment, lubrication, types, and applications of the machines.

Beaver Sawing Vise

Form 432, for jobbers' looseleaf catalog, describing the Beaver square-and-sawing vise, has been issued by the Borden Co., Warren, Ohio. It contains an illustration of the vise, another of the device cutting a piece of tubing, and two photos showing pieces of tubing, one cut by the vise and the other by a hack saw.

Synchronous Motors

A 52-page catalog containing illustrations and descriptions of its synchronous motors has been published by General Electric Co. A general description of these motors is followed by detailed data on high-speed synchronous motors, and their operating characteristics, and the same data for low-speed motors, and special motors.

Synchronous motor—generators, power factor, control equipment, and applications of such motors in various industries are likewise described and illustrated.

Revere Products

The January, 1933, catalog describing Revere copper and brass products has been issued by Revere Copper and Brass Inc., New York City. Welding rods, soldering coppers, rivets and burs, die-pressed forgings, hammered forgings, tubes and pipe, and sheet metals are among the products described.

Inco Magazine

Volume 11 of Inco, the magazine published by the International Nickel Co., Inc., contains an article on the "Engineer Enters the Kitchen," describing the use of Monel metal for sink and cabinet tops, etc., written by Lorin W. Smith, Jr., director of the General Electric Kitchen Institute.

It also contains an account of developments in the marine field, written by F. G. Smith of the American Brass Co., and an article on fastenings for boats by George F. Crouch, chief naval architect of Henry B. Nevins, Inc.

Other articles include "The Use of Acid-Resisting Metals for Pickler's Racks" by J. C. Weaver of the Weaver Bros. Co.; "Nickel and Nickel Alloys in the Chemical Field Today," by H. E. Searle; and an account of the motors used in Gar Wood's racing boats.

KELVINATOR WILL PRINT 'SALES SLANTS' IN FRENCH

DETROIT—"Sales Slants," the educational publication of the International Kelvinator Sales club, is to be translated into French for the benefit of members of the sales organization who speak that language, announces Vance C. Woodcox, director of advertising and sales promotion departments of Kelvinator Corp.

The monthly publication, in French, is to be known as *Conseils aux Vendeurs de Kelvinator*. Kelvinator-Hogan, Inc., the mythical sales concern featured in the booklet, will be *Vendeurs de Kelvinator*.

Translation of the publication will be for the benefit of French Canadian, French, and Moroccan Kelvinator salesmen.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Macabees Bldg., Detroit, Mich.

POSITIONS WANTED

FACTORY MANAGERS—DISTRIBUTORS—NOTE. Cut down on 1933 field operating costs. Combine positions of District Sales Manager, Service Manager and Commercial Sales Engineer by securing services of one who has held similar position with a nationally known refrigerator manufacturer. Graduate engineer. Age 35. Further information on request. Best references furnished. Box 531.

DISTRIBUTORS and MANUFACTURERS who do not build a foundation in 1933 in Commercial Refrigeration will have considerable difficulty thereafter. My services are available, and my experience equips me to take charge of all matters of Installation and Service Engineering. Kindly state name of unit, territory and salary. Box 535.

SALESMAN and sales executive thoroughly familiar with electric refrigerators, oil burners, washers, etc. Wholesale and retail experience also four years business for himself. Wants position, factory, wholesaler or sales manager utility company or department store in any section of country. Permanent opportunity as important as immediate compensation. Best of references. Box 536.

POSITION AVAILABLE

ENGINEER WANTED: Refrigeration Engineer experienced in design and manufacture commercial compressor units. Must have successful record. Submit all information as to previous connections, age, references, etc. in first letter. Box 538.

NOTICE

Are you a refrigerator display case manufacturer who is looking for the proper compressor unit to fit in with your present line so that you can market complete refrigeration service for food service or food marketing outlets?

Old established machinery manufacturer, with new type compressor having definite advantages, prefers to sell through case manufacturer rather than direct.

Correspondence invited with reliable case manufacturer.

Address Box 537
Electric Refrigeration News

NAME PLATES ALL KINDS..

Vitreous Enameled or All Metal

There is not a great deal of difference in the appearance of most refrigerators. Make your product distinctive with a good looking name plate. We will design one for you

THE D. L. LAUL CO.
COLUMBUS, OHIO

Testing Laboratory

For refrigerators
and refrigerating equipment
George B. Bright Co.
Refrigerating Engineers and Architects
2615 12th St., Detroit, Mich.

ACE
HARD RUBBER
EQUIPMENT FOR
REFRIGERATED
DISPLAY CABINETS
DOOR FRAMES,
SLIDE RAILS, JAMBS,
GLAZING STRIPS, etc.
STANDARD AND SPECIAL
SIZES AND DESIGNS
Write for information and prices to
AMERICAN HARD RUBBER CO.
13 Mercer Street New York, N.Y.
Other Sales Offices: Akron and Chicago

SPEAR WINS TWIN CITY XMAS SALES CONTEST

ST. PAUL—R. E. Spear, Frigidaire sales supervisor here, was high man in a supervisors' Christmas contest conducted by the Twin Cities branch of Frigidaire Corp. Mr. Spear, who supervises sales operations in several counties, sold 181 per cent of his sales quota and received a check for \$50.

Second prize of \$30 went to F. B. Posthuma, Minneapolis supervisor, whose organization made 125 per cent of its Christmas quota. J. C. Saunders handling territory of North Dakota and western Minnesota took third prize, \$20, with 101 per cent of quota.

Mr. Spear secured an order for equipment at Ft. Snelling.